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TRAFFIC SPEED REPORT NO. 79

DEC. 1964
NO. 31

Joint Highway Research Project

by

E. G. EVANS

PURDUE UNIVERSITY
LAFAYETTE INDIANA

Progress Report

TRAFFIC SPEED REPORT NO. 79

TO: K. B. Woods, Director
Joint Highway Research Project

December 17, 1964

FROM: H. L. Michael, Associate Director
Joint Highway Research Project

File: 8-3-3
Project: C-36-10C

Attached is a Progress Report entitled "Traffic Speed Report No. 79." This report has been authored by Mr. Eugene G. Evans a Graduate Assistant on our staff under the direction of Professor H. L. Michael.

This report is of another of the annual studies of speed which the Project has conducted for more than 20 years. The primary purpose of the studies is to provide data for speed trend information on the several types of state highways. The speeds are taken each year at the same locations if conditions at the sites have not changed. Speeds are recorded for only free-flowing vehicles.

The data collected this year indicate that the trends of speeds for both automobiles and trucks on all types of facilities are increasing. Of particular interest is the finding that numerous trucks, especially heavy trucks on two-lane highways, are exceeding the legal speed limit.

Copies of this report will also be distributed to the Indiana State Police, the Indiana Traffic Safety Foundation, the Indiana Office of Traffic Safety and to the Bureau of Public Roads. In the latter case the practice has been for the Bureau to use the information with other information provided by many other states to develop speed trend data for the United States and regions of the country.

The report is presented to the Board for the record.

Respectfully submitted,

Harold L. Michael

Harold L. Michael, Secretary

HLM:bc

Attachment

Copies:

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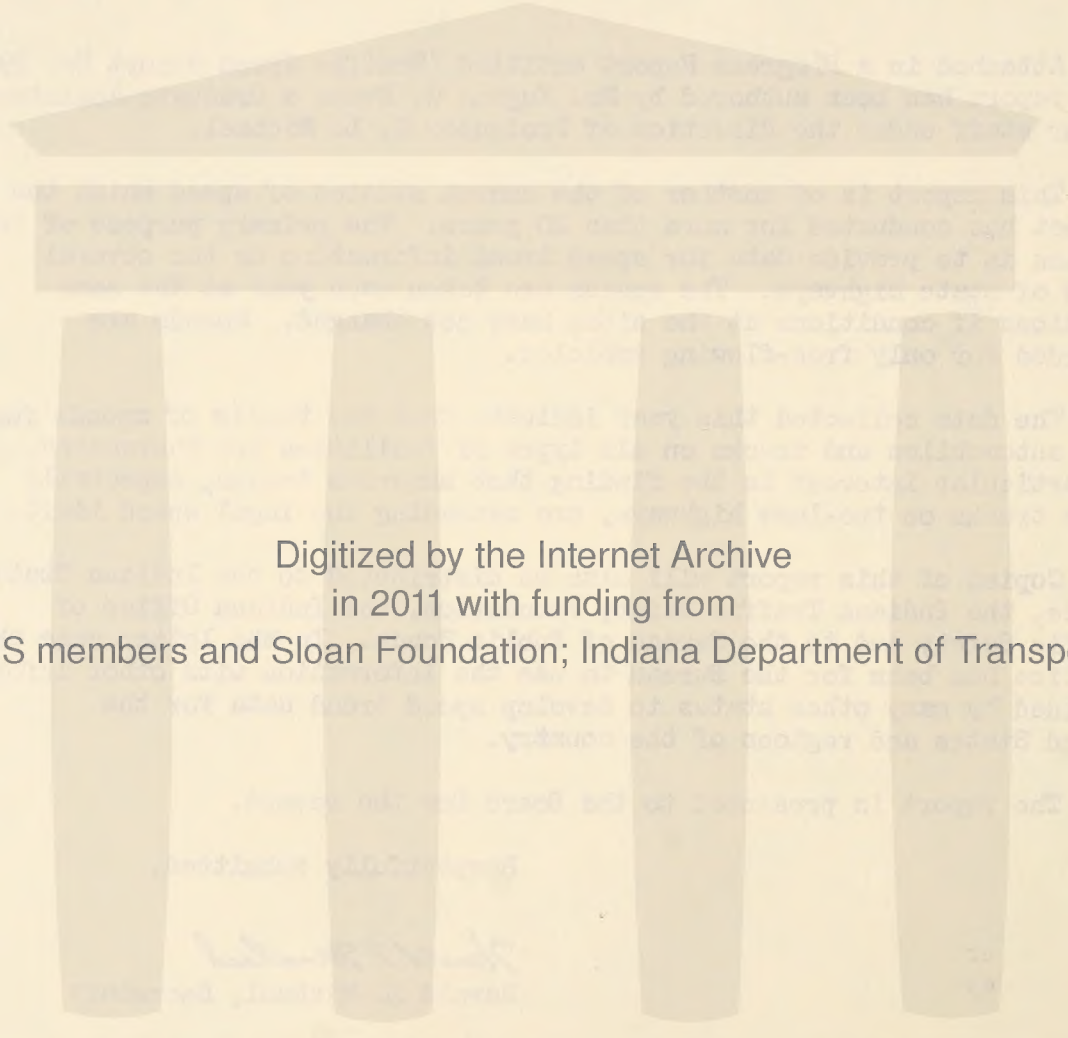

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Progress Report

TRAFFIC SPEED REPORT NO. 79

by

Eugene G. Evans
Graduate Assistant

Joint Highway Research Project

File No: 8-3-3

Project No: C-36-10C

Purdue University

Lafayette, Indiana

December 17, 1964

Progress Report

Phase II Study No. 75

by

Eugene G. Brown
Graduate Assistant

Joint Highway Research Project

File No: 8-3-3

Project No: C-36-32C

Purdue University

Lafayette, Indiana

December 17, 1964

TRAFFIC SPEED REPORT NO. 79

Introduction

This report is an analysis of spot-speed observations made during July and August 1964. All observations were made on free-flowing vehicles (vehicles whose speed is not affected by other vehicles traveling in the same direction) on level tangent sections of rural highways during daylight and under favorable weather conditions. Speeds were recorded to the nearest mile per hour. Data were collected for three classifications of highways - two lane, four lane, and interstate.

A representative sample of traffic speed was obtained from four stations in each classification. The locations of the stations used were as follows: (See Figure 1):

		Interstate Highways
1.	I-80	0.7 Miles East of Junction of SR 912
2.	I-65	1.0 Mile West of Junction of SR 334
3.	I-74	1.0 Mile East of Junction of Post Road
4.	I-65	2.9 Miles North of Junction of SR 160
		Four Lane Highways
5.	U.S. 31	1.2 Miles South of Junction of SR 38
6.	U.S. 52	1.0 Mile East of Junction of SR 28
7.	U.S 41	1.0 Mile North of South Junction of SR 2
8.	U.S. 52	1.0 Mile West of Klondike
		Two Lane Highways
9.	U.S. 41	1.0 Mile North of Boswell
10.	U.S. 52	2.0 Miles North of Templeton
11.	U.S. 31	3.0 Miles South of Rochester
12.	SR 25	0.7 Miles West of Americus

Equipment and Field Procedure

The information for this study was obtained by use of an Electromatic Radar Speed Meter - Model No. S-5. The meter was placed approximately four feet from the edge of the pavement at an angle of less than 10° with the highway centerline. Speed inaccuracies are negligible at small angles (less than 10°); therefore, corrections were unnecessary.

At the beginning of the study a test was performed to determine the accuracy of the radar meter by use of a calibrated fifth wheel (see Appendix). The fifth wheel was checked for accuracy at the five-mile speedometer check section between Lebanon and Lafayette and no errors were found in the instrument. The radar meter was found to have an error of less than 1/2 mile per hour; consequently, the use of a calibration curve was deemed unnecessary. Periodically during the survey the meter was checked with the 30 and 45 mile per hour tuning forks to assure correct operation.

Procedure and Analysis

The data from previous studies indicated that four locations in each classification would provide a reasonable estimate of average speeds at a moderate cost. The sample size for passenger cars was calculated (see Appendix) to be 186 to allow an estimate of the car speeds within a plus or minus two miles per hour at a confidence level of 95%. From previous data 35 observations of heavy trucks were found to permit an estimation of average truck speeds within a plus or minus two miles per hour at a confidence level of 90%. These minimum sample sizes were used for this study; consequently, the average speeds recorded at the stations are estimates, with possible error and confidence as noted, of the true average speeds at these locations at the time of observation. The speeds were recorded to the nearest mile per hour.

Equipment and Field Procedure

The information for this study was obtained by use of an Electronic Radar Speed Meter - Model No. S-5. The meter was placed approximately four feet from the edge of the pavement at an angle of less than 10^{0} with the highway centerline. Speed measurements are negligible at small angles (less than 10^{0}); therefore, corrections were unnecessary.

At the beginning of the study a test was performed to determine the accuracy of the radar meter by use of a calibrated fifth wheel (see Appendix). The fifth wheel was checked for accuracy at the Tri-Delta speedometer check section between Lebanon and Lafayette and no errors were found in the instrument. The radar meter was found to have an error of less than 1/2 mile per hour; consequently, the use of a calibration curve was deemed unnecessary. Periodically during the survey the meter was checked with the 30 and 45 mile per hour tuning forks to ensure accurate operation.

Procedure and Analysis

The data from previous studies indicated that four locations in each classification would provide a reasonable estimate of average speeds at a moderate cost. The sample size for passenger cars was calculated (see Appendix) to be 150 to allow an estimate of the car speeds within a plus or minus two miles per hour at a confidence level of 95%. From previous data 35 observations of heavy trucks were found to permit an estimation of average truck speeds within a plus or minus two miles per hour at a confidence level of 95%. These minimum sample sizes were used for this study; consequently, the average speeds recorded at the selected sites are estimates, with possible error and confidence as noted, of the true average speeds at those locations at the time of observation. The speeds were recorded to the nearest mile per hour.

The vehicles were classified as passenger car or truck. Passenger cars were further classified into two groups - Indiana or Non-Indiana, and the analysis was performed as classified and combined. The trucks were also classified into two groups - Light (less than 5000 pounds gross weight) or Heavy (equal to or more than 5000 pounds gross weight), and again the analysis was performed as classified and combined. The speeds were recorded and analyzed in the manner indicated to compare Indiana and Non-Indiana observed speeds with legal speeds and the observed truck speeds with the legal speed according to weight classification. The speed limits in Indiana are as follow: 70 miles per hour for passenger cars and light trucks on interstate highways, 65 miles per hour for passenger cars and light trucks on other highways; 55 miles per hour for heavy trucks on divided highways with a median of 20 feet or more and 50 miles per hour for heavy trucks on other highways. All four lane and interstate highways observed in this study were divided by a median of at least 20 feet.

Summary and Results

The data collected at each observation station is summarized by station in Tables 1 through 12 and by the type of facility - interstate, four-lane, and two-lane - in Tables 13 through 15. Table 16 is a summary of all the data collected. Figures 2 through 17 are cumulative frequency curves acquired and drawn from each of the corresponding tables. Speed trends for the past ten years are tabulated in table 17 and are shown graphically in figure 18.

From Table 17 and Figure 18 it is apparent that speeds have increased over last year. Speeds also have increased over the past 10 years. Although the increase this year seems to be quite high, part of this may be due to differences between the last and the present observer in such areas as deciding which vehicles were free-flowing, and the trend may actually be less

facilities.

Of particular interest is the similarity in travel characteristics between the four-lane divided but non-limited access highways and interstate facilities. The mean-speeds, 85th percentile and 15th percentile speeds for both facilities are practically the same. This is probably accounted for by the fact that the four-lane highway observation stations are so located as to represent similar roadway conditions as those found on the interstate system - that is, good shoulders; wide medians; and little access and egress friction at the station locations.

differences or it may be the beginning of an increasing trend.

A comparison of the observed and allowable speed of heavy trucks produces the following information:

Type	Speed	Limit	less than the Speed Limit	greater than the Speed Limit
Interstate	60.2	55.0	53.1	46.9
Four-Lane	60.5	55.0	54.6	45.4
Two-Lane	57.2	50.0	43.0	57.0

problem of illegal speeds of trucks is growing progressively worse.

Recommendations

The following refinements in collection of the speed data are recommended to assure the continued collection of accurate data:

1. Move the speed study location on I-80 since it is close to an interchange, and the increasing traffic volume will make it difficult to obtain "Free Flowing" conditions.
2. The observer should do everything within his power to make sure that the drivers are not aware of his presence. The radar head should be hidden and the car and observer should be hidden as much as possible. The purchase of a new 50 foot extension cord should enable the observer to get a considerable distance from the roadway.
3. A more accurate comparison of the speeds might result if speeds were correlated with traffic volumes at the time of observation.

Calibration of Radar Meter

On July 15, 1965 the accuracy of the radar meter was checked by the use of a calibrated fifth wheel. The following results were obtained from these test runs.

Fifth Wheel Reading	Radar Meter Reading
40 ± 0.5 MPH	40 MPH
50 MPH	50 MPH
60 MPH	59.5 MPH
70 ± 0.5 MPH	69 MPH

Since the error in the radar meter is a plus or minus 2 miles per hour as set by the manufacturer, no corrections were applied to the field observations.

Determination of Sample Size

The accuracy of the radar meter is a plus or minus 2 miles per hour from the true speed of the vehicle. This value is stated by the manufacturer.

A standard deviation of 6.962 for automobile speeds was obtained from the 1963 Speed Study Data. In calculating a sample size a level of significance of 5% was used for both Type I error (probability of rejecting a true hypothesis) and Type II error (probability of accepting a false hypothesis). The following symbols were used in determining the sample size:

u - mean of population of speeds

u_o - mean of sample of speeds

O - standard deviation of speeds

t_A - t value for type I error

t_B - t value for type II error

The population of speeds was assumed to be normally distributed.

$$u - u_o = t_A \frac{O}{\sqrt{n}} + t_B \frac{O}{\sqrt{n}}$$

$$u - u_o = (t_A + t_B) \frac{O}{\sqrt{n}}$$

$$n = \left[\frac{(t_A + t_B) \; O}{u - u_o} \right]^2$$

$$n = \left[\frac{(1.96 + 1.96) \; 6.962}{2} \right]^2$$

$$= 186.2$$

From the above calculation approximately 200 passenger cars should be observed at each location for a level of significance of .05.

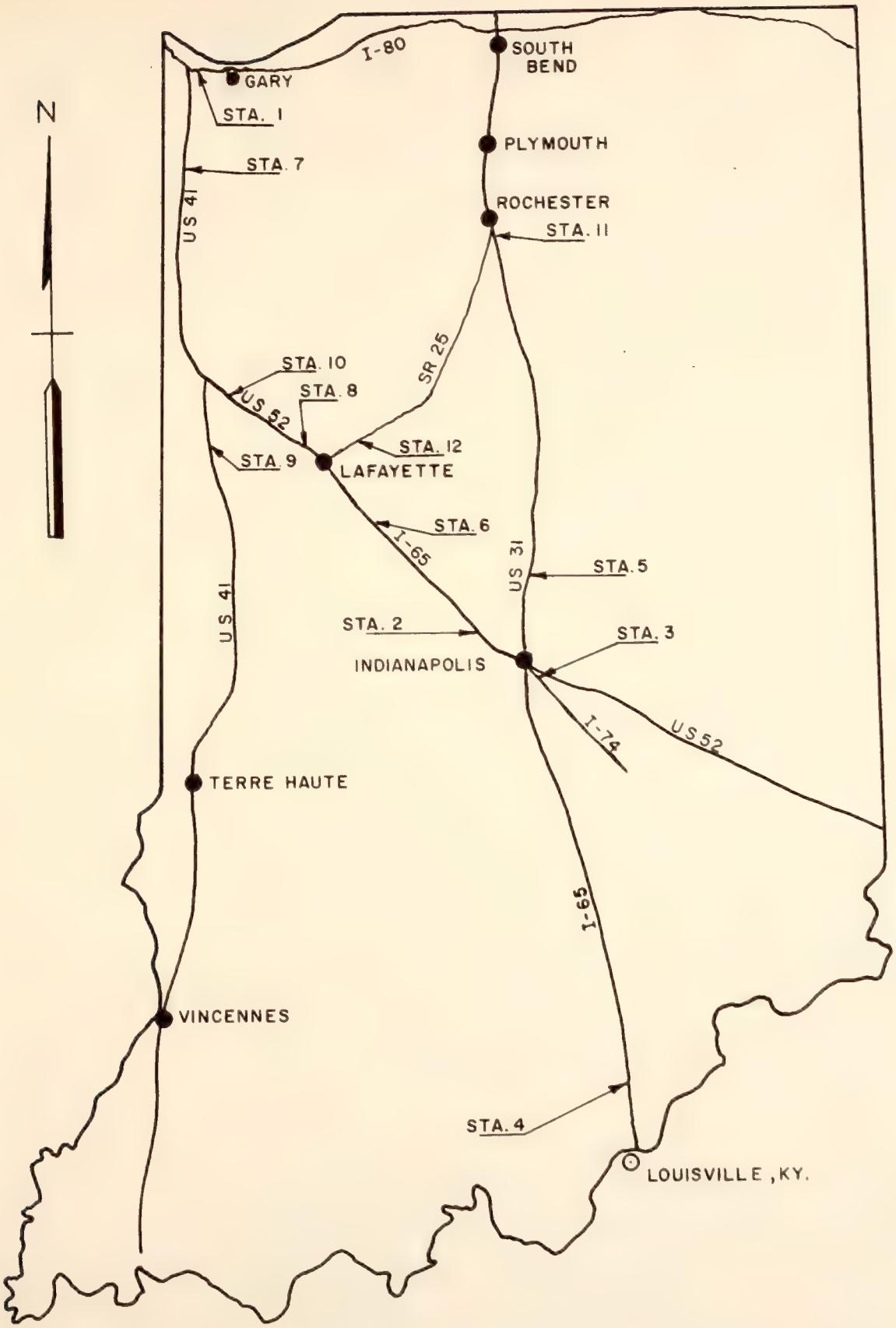


FIG. 1 - LOCATIONS OF SPEED-STUDY STATIONS

TABLE 1 SPEED DATA

Station 1 Highway I-80 Location [illegible] Mile E. Of [illegible] Co.

No. of Lanes 4 Type of Surface P.C.C. Weather Hot and Cloudy

This Observation — Date July 29, 1964 — Time [illegible]

Last Previous Observation (Speed Report No.) — Date June 10, 1964 — Time [illegible]

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	250	295	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Average speed (m.p.h.)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Standard deviation	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	% of vehicles traveling at or less than 24 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	29 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	34 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	39 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	44 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	49 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	54 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	59 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	64 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	69 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	74 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	79 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	84 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	89 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bound	No. of vehicles obs.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Average speed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Bound	No. of vehicles obs.	127	140	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	Average speed	56.9	60.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 2 SPEED DATA

Station 2 Highway I-65 Location 1.0 Mile West of S.R. 334

No. of Lanes 4 Type of Surface PCC Weather Very Hot & Humid

This Observation — Date 7-23-64, Time 1:40 - 4:00 PM

Last Previous Observation (Speed Report No. _____) — Date 6-11-63, Time 1:10 - 2:45 PM

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		224	273	135	182	89	91	47	84	18	23	29	61
	Average speed (m.p.h.)		61.8	63.9	61.0	62.9	63.2	65.9	53.4	56.5	56.6	58.9	51.5	55.6
	Standard deviation		5.94	7.09	6.28	7.45	5.13	5.86	5.01	6.56	4.64	8.43	5.85	5.53
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	1.6
		44 m.p.h.	0.5	1.1	0.7	1.7	0.0	0.0	6.4	3.6	0.0	0.0	10.3	4.9
		49 m.p.h.	3.1	3.3	8.9	5.0	0.0	0.0	27.6	11.9	11.1	17.4	37.9	9.8
		54 m.p.h.	8.9	10.6	12.6	13.7	3.4	4.4	53.2	34.5	33.3	34.8	65.5	34.4
		59 m.p.h.	32.6	15.0	37.8	29.1	24.7	8.3	82.9	70.2	72.2	43.5	89.6	78.7
		64 m.p.h.	69.6	51.3	75.6	55.5	60.7	42.9	100.0	91.7	100.0	78.3	100.0	96.7
		69 m.p.h.	89.7	78.8	92.6	81.3	88.8	73.6	----	96.4	---	87.0	---	100.0
		74 m.p.h.	98.2	95.2	98.5	95.6	98.9	94.5	---	98.8	---	95.7	---	---
		79 m.p.h.	100.0	98.9	100.0	98.9	100.0	98.9	---	100.0	---	100.0	---	---
		84 m.p.h.	---	100.0	---	100.0	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
E. Bound	No. of vehicles obs.		116	140	74	103	42	37	26	38	7	13	19	25
	Average speed		60.5	64.3	59.6	64.1	62.1	64.9	52.8	56.0	57.3	59.8	51.3	57.1
W. Bound	No. of vehicles obs.		108	133	61	79	47	54	21	46	11	10	10	36
	Average speed		63.3	63.4	62.6	61.3	64.2	66.5	54.1	55.3	56.1	57.7	51.9	54.6

TABLE 3 SPEED DATA

Station 3 Highway I-74 Location [illegible]

No. of Lanes 4 Type of Surface [illegible] Weather [illegible]

This Observation — Date July 2?, 1964 — Time 10:15 a.m. - 1:00 p.m.

Last Previous Observation (Speed Report No. _____) — Date June ?, 1963 — Time 9:55 a.m. - 12:15 p.m.

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles		No. of vehicles obs.	[illegible]	[illegible]	188	135	39	52	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Average speed (m.p.h.)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Standard deviation	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	% of vehicles traveling at or less than	24 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	0.	.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		29 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		34 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		39 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		44 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		49 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		54 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		59 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		64 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]
		69 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]
		74 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	---
		79 m.p.h.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	---	[illegible]	---	[illegible]	---	---
		84 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
E. Bound		No. of vehicles Obs.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Average speed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
W. Bound		No. of vehicles obs.	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
		Average speed	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 4 SPEED DATA

Station 4 Highway I-65 Location 2.9 mile north of S.R. #160

No. of Lanes 4 Type of Surface PCC Weather Very hot and humid

This Observation — Date 7-[illegible]-64 — Time 1:00 - 5:00 PM

Last Previous Observation (Speed Report No. _____) — Date 6-13-63 — Time 11:30 AM - 1:45 PM

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	254	226	116	102	138	124	47	95	11	25	36	70
	Average speed (m.p.h.)	62.6	65.5	62.3	64.7	62.8	66.1	53.4	56.7	54.7	58.0	53.0	56.3
	Standard deviation	5.65	6.30	6.10	6.13	4.96	6.00	4.63	6.47	5.12	7.91	4.47	6.18
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	1.4
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	1.4
	39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	0.0	4.0	0.0	1.4
	44 m.p.h.	0.0	0.9	0.0	1.0	0.0	0.8	2.1	3.2	0.0	4.0	2.7	2.9
	49 m.p.h.	1.2	0.9	1.7	1.0	1.0	0.8	10.1	7.4	9.1	8.0	22.2	7.1
	54 m.p.h.	8.3	5.3	12.1	7.8	5.1	3.2	63.8	32.6	54.5	24.0	66.7	35.7
	59 m.p.h.	25.9	20.8	31.0	22.5	21.7	19.4	87.2	70.5	72.7	64.0	91.7	72.9
	64 m.p.h.	65.4	51.2	62.9	54.1	67.4	38.7	100.0	89.5	100.0	80.0	100.0	92.9
	69 m.p.h.	88.9	72.6	85.3	75.5	92.0	70.2	---	96.8	---	88.0	---	100.0
	74 m.p.h.	98.4	93.4	98.3	95.1	98.6	91.9	---	100.0	---	100.0	---	---
	79 m.p.h.	100.0	97.8	100.0	99.0	100.0	96.8	---	---	---	---	---	---
	84 m.p.h.	---	99.6	---	100.0	---	99.2	---	---	---	---	---	---
	89 m.p.h.	---	100.0	---	---	---	100.0	---	---	---	---	---	---
N Bound	No. of vehicles obs.	146	113	61	50	85	63	26	50	7	14	19	36
	Average speed	62.0	65.2	61.2	64.5	62.5	65.7	52.9	56.7	53.9	58.4	52.5	56.0
S Bound	No. of vehicles obs.	108	113	55	52	53	61	21	45	4	11	17	34
	Average speed	63.4	65.8	63.6	64.8	63.2	66.6	54.1	56.8	56.2	57.5	53.6	56.5

TABLE 5 SPEED DATA

Station 5 Highway U.S. 31 Location 1.2 Mile South of SR 38

No. of Lanes 4 Type of Surface AC Weather Partly Cloudy

This Observation — Date 7-22-64, Time 3:00 - 6:00 PM

Last Previous Observation (Speed Report No. _____) — Date 6-6-63, Time 2:50 - 4:45 PM

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	244	285	217	241	27	44	48	77	30	34	18	43
	Average speed (m.p.h.)	61.0	62.1	60.9	62.1	61.4	62.2	54.4	55.4	56.7	56.7	50.6	54.4
	Standard deviation	6.39	7.04	6.37	7.58	6.65	8.06	7.08	7.08	7.78	7.62	3.26	6.53
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.4	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.4	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.7	0.0	0.4	0.0	2.3	0.0	2.6	0.0	2.9	0.0	2.3
	44 m.p.h.	1.2	2.1	.9	2.1	3.7	2.3	2.1	6.5	3.3	2.9	0.0	9.3
	49 m.p.h.	4.5	6.7	4.6	7.1	3.7	4.6	29.2	19.5	19.9	17.7	44.4	20.9
	54 m.p.h.	12.7	15.4	12.9	15.8	11.1	13.6	58.3	40.3	39.9	35.3	88.9	44.2
	59 m.p.h.	40.6	33.0	42.3	34.0	22.2	27.3	72.9	74.0	59.9	67.7	94.9	79.1
	64 m.p.h.	73.8	59.0	73.3	59.3	77.8	56.8	87.5	90.9	79.9	82.4	100.0	97.7
	69 m.p.h.	92.2	85.3	91.7	84.7	96.3	88.6	97.9	96.1	96.7	94.1	---	97.7
	74 m.p.h.	98.4	97.5	98.6	97.1	96.3	100.0	100.0	100.0	100.0	100.0	---	100.0
	79 m.p.h.	99.6	99.7	99.5	99.6	100.0	---	---	---	---	---	---	---
	84 m.p.h.	100.0	100.0	100.0	100.0	---	---	---	---	---	---	---	---
	89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
N. Bound	No. of vehicles obs.	109	142	98	120	11	22	17	39	15	16	2	23
	Average speed	62.8	62.3	62.5	62.3	65.0	62.2	58.1	55.3	58.5	57.5	55.5	53.7
S. Bound	No. of vehicles obs.	135	143	119	121	16	22	31	38	15	18	16	20
	Average speed	59.6	62.0	59.7	61.9	58.9	62.3	52.4	55.6	54.9	56.0	50.0	55.2

TABLE 6 SPEED DATA

Station 6 Highway U. S. 52 Location 1 Mile South of S Jct. S. R. 28

No. of Lanes 4 Type of Surface AC Weather Hot and Humid

This Observation — Date July 23, 1964 — Time 10:30 a.m. - 1:0 p.m.

Last Previous Observation (Speed Report No. _____) — Date June 11, 1963 — Time 3:5 - 4:45 p.m.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	231	254	145	126	86	128	48	100	18	25	30	75
	Average speed (m.p.h.)	61.5	63.4	61.2	63.1	61.1	64.6	51.9	55.6	53..	53.6	48.2	55.5
	Standard deviation	5.54	7.26	5.50	7.94	5.58	6.61	6.32	6.35	5.42	5.72	5.32	5.42
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	.0	.0	.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.4	.0	0.8	0.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.4	0.0	0.8	.0	0.0	0.0	2.0	0.0	4.0	0.0	1.3
	44 m.p.h.	0.4	3..	1..	3.4	.0	1..	10.4	5.0	0.0	8.0	16.7	4.0
	49 m.p.h.	2.6	5.9	3.4	7.1	1.1	4.7	37.5	15.0	5.5	28.0	56.7	10.7
	54 m.p.h.	9.5	8.6	10.3	11.9	8.1	5.5	68.7	38.0	16.7	44.0	100.0	37.3
	59 m.p.h.	33.3	19.3	34.5	23.0	31.4	15.6	87.5	77.0	66.7	68.0	---	80.0
	64 m.p.h.	72.7	49.2	72.4	54..	73.3	42.3	95.8	94.0	88.3	88.0	---	96.0
	69 m.p.h.	92.1	79.9	96.5	79.4	86.7	82.5	100.0	98.0	100.0	92.0	---	100.0
	74 m.p.h.	98.7	96.1	99.3	96.0	97.7	96.1	---	100.0	---	100.0	---	---
	79 m.p.h.	100.0	98.8	100.0	98.4	100.0	97.7	---	---	---	---	---	---
	84 m.p.h.	---	100.0	---	100.0	---	100.0	---	---	---	---	---	---
	89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
N. Bound	No. of vehicles obs.	117	130	70	69	47	61	29	57	11	14	18	43
	Average speed	62.1	63.9	61.9	63.1	63.0	64.9	57.8	54.9	59.4	55.6	48.8	55.6
S. Bound	No. of vehicles obs.	114	124	75	57	39	6	19	43	7	11	12	32
	Average speed	61.0	63.7	61.0	63.1	60.9	64.2	50.5	56.5	56.0	59.5	47.3	55.3

TABLE 7 SPEED DATA

Station 7 Highway U. S. 41 Location 1 Mile North of S. Jct. S. R. 2

No. of Lanes 4 Type of Surface PCC Weather Hot and Humid

This Observation — Date July 28, 1964 — Time 12:15 - 4:00 p.m.

Last Previous Observation (Speed Report No. _____) — Date June 10, 1963 — Time 12:45 - 3:00 p.m.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	244	283	110	130	234	153	53	136	21	38	32	98
	Average speed (m.p.h.)	60.5	61.9	60.3	60.9	60.7	62.8	52.1	54.5	52.9	55.1	51.5	54.2
	Standard deviation	5.77	7.43	6.76	7.96	5.26	6.85	5.11	6.80	6.46	9.96	4.01	5.13
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	.0	0.0	0.0	0.1
	34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	39 m.p.h.	0.0	0.7	0.0	1.5	0.0	0.0	0.0	0.7	0.0	2.6	0.0	0.0
	44 m.p.h.	0.4	1.4	0.9	3.1	0.0	0.0	9.4	8.8	9.5	15.8	9.4	6.1
	49 m.p.h.	3.3	5.3	3.6	8.5	2.9	2.6	24.5	16.9	33.3	31.6	18.7	11.2
	54 m.p.h.	13.1	14.8	16.4	18.5	10.4	11.8	69.8	47.1	61.9	50.0	75.0	45.9
	59 m.p.h.	38.9	33.6	40.9	34.6	37.3	32.7	90.6	80.2	76.2	63.2	100.0	86.7
	64 m.p.h.	77.0	63.6	75.5	68.5	78.3	59.5	98.1	94.1	95.2	79.0	---	100.0
	69 m.p.h.	93.8	84.5	91.8	86.2	95.5	83.0	100.0	97.8	100.0	91.2	---	---
	74 m.p.h.	99.6	96.8	100.0	96.9	99.2	96.7	---	99.3	---	97.4	---	---
	79 m.p.h.	100.0	99.7	---	100.0	100.0	99.4	---	100.0	---	100.0	---	---
	84 m.p.h.	---	100.0	---	----	----	100.0	----	----	----	---	---	---
	89 m.p.h.	---	---	---	---	---	---	---	---	--	---	----	---
N. Bound	No. of vehicles obs.	118	119	64	53	54	66	26	52	13	12	13	40
	Average speed	61.5	62.6	61.0	60.5	62.1	64.3	53.1	53.0	54.4	54.3	5.18	49.5
S. Bound	No. of vehicles obs.	126	164	46	77	80	87	27	84	8	26	19	58
	Average speed	59.6	61.4	59.4	61.2	59.7	61.7	51.1	55.4	50.5	55.5	51.3	55.4

TABLE 8 SPEED DATA

Station 8 Highway U. S. 52 Location 1 Mile West of Klondyke

No. of Lanes 4 Type of Surface PCC Weather Hot and Cloudy

This Observation
Date July 2, 1964
Time 1:30 - 2:[illegible] p.m.

Last Previous Observation (Speed Report No. _____)
Date June 6, 1963
Time 10:30 a.m. - 1:25 p.m.

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		235	248	107	141	128	107	45	99	14	22	31.0	77
	Average speed (m.p.h.)		58.7	60.1	58.1	59.0	59.2	61.7	46.6	53.4	50.2	51.7	45.8	53.9
	Standard deviation		5.84	6.37	5.84	7.59	5.77	5.46	7.94	6.40	9.71	6.36	6.54	6.40
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	7.1	0.0	12.9	0.0
		39 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	13.3	1.0	21.4	0.0	12.9	1.3
		44 m.p.h.	1.3	1.6	0.9	0.7	1.6	0.0	33.3	17.1	21.4	18.2	38.7	7.8
		49 m.p.h.	5.1	7.3	3.7	12.1	6.3	1.9	55.5	26.3	28.6	40.9	67.7	22.1
		54 m.p.h.	25.9	17.7	20.6	24.8	32.7	9.4	86.6	53.5	57.1	68.2	96.8	42.4
		59 m.p.h.	49.8	45.2	54.2	52.5	41.4	35.8	100.0	82.8	100.0	86.4	100.0	81.8
		64 m.p.h.	85.9	76.6	86.9	85.1	83.6	69.2	---	95.0	---	100.0	---	93.5
		69 m.p.h.	97.4	92.1	96.3	92.2	[illegible]	91.5	---	100.0	---	---	---	100.0
		74 m.p.h.	100.0	97.2	100.0	96.5	100.0	96.1	---	---	---	---	---	---
		79 m.p.h.	---	99.2	---	98.6	---	100.0	---	---	---	---	---	---
		84 m.p.h.	---	100.0	---	100.0	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
E. B. Bound	No. of vehicles obs.		103	124	49	70	54	54	18	61	6	14	12	47
	Average speed		56.3	60.7	56.2	59.8	56.4	61.5	44.5	55.6	47.3	52.7	43.1	56.3
W. Bound	No. of vehicles obs.		132	124	58	71	74	53	27	38	8	8	19	30
	Average speed		60.5	59.6	59.7	58.2	61.2	61.6	48.1	50.2	52.3	50.1	46.2	50.2

TABLE 9 SPEED DATA

Station 9 Highway U.S. 41 Location 1 Mile N. of Boswell

No. of Lanes 2 Type of Surface PCC Weather Hot and Clear

This Observation — Date July 10, 1964 — Time 1:30 - 4:00 PM

Last Previous Observation (Speed Report No. _____) — Date June 13, 1963 — Time 11:45 AM - 2:00 PM

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		229	256	109	118	120	138	45	86	15	26	30	60
	Average speed (m.p.h.)		55.9	59.6	55.2	59.3	56.6	59.8	49.3	51.5	50.9	53.0	49.0	50.8
	Standard deviation		6.06	7.02	5.83	7.32	6.21	6.58	5.37	6.53	6.08	9.56	4.98	4.61
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		39 m.p.h.	0.4	0.0	0.9	0.0	0.0	0.0	0.0	3.5	0.0	11.5	0.0	0.0
		44 m.p.h.	5.2	1.2	4.6	2.5	5.8	0.0	19.9	9.3	20.0	23.1	19.9	3.3
		49 m.p.h.	13.9	8.6	14.7	11.0	13.3	6.5	55.6	37.2	46.7	34.6	59.9	38.3
		54 m.p.h.	39.3	23.4	45.9	24.6	33.3	22.5	79.9	69.8	66.7	50.0	86.7	78.3
		59 m.p.h.	67.2	46.5	71.6	49.2	63.3	44.2	95.6	80.0	93.3	65.4	96.7	95.0
		64 m.p.h.	93.4	77.3	94.5	76.3	92.5	78.3	100.0	96.5	100.0	88.5	100.0	100.0
		69 m.p.h.	100.0	93.4	100.0	93.2	100.0	93.5	---	100.0	---	100.0	---	---
		74 m.p.h.	---	96.9	---	95.8	---	97.8	---	---	---	---	---	---
		79 m.p.h.	---	100.0	---	100.0	---	100.0	---	---	---	---	---	---
		84 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
N Bound	No. of vehicles obs.		120	128	57	58	63	70	20	45	6	13	14	32
	Average speed		54.1	59.6	53.3	59.3	54.9	59.9	48.7	51.8	51.3	53.7	47.6	51.1
S Bound	No. of vehicles obs.		109	128	52	60	57	68	25	41	9	13	16	28
	Average speed		57.9	59.5	57.3	59.2	58.5	59.8	50.3	51.1	50.6	52.2	50.2	50.6

TABLE 10 SPEED DATA

Station 10 Highway U. S. 52 Location 2 Miles N of Templeton

No. of Lanes 2 Type of Surface A.C. Weather

This Observation — Date July 10, 1964 — Time 8:45 - 11:15 AM

Last Previous Observation (Speed Report No.) — Date June 14, 1963 — Time 9:40 - 11:20 AM

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		221	247	90	86	131	161	47	104	9	26	38	78
	Average speed (m.p.h.)		58.5	60.1	58.1	59.2	58.7	60.6	46.6	53.3	50.7	53.7	45.7	53.2
	Standard deviation		5.83	5.82	5.11	6.10	6.29	5.71	5.13	4.82	6.36	4.67	4.36	4.90
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		34 m.p.h.	0.5	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		39 m.p.h.	0.5	0.0	0.0	0.0	0.8	0.0	4.3	0.0	0.0	0.0	2.6	1.3
		44 m.p.h.	0.9	0.8	0.0	1.2	1.5	0.6	8.2	4.8	11.1	3.8	12.1	5.1
		49 m.p.h.	5.4	1.2	3.3	2.3	6.9	0.6	18.7	24.0	55.6	23.1	84.2	24.4
		54 m.p.h.	21.6	15.4	21.9	19.8	21.4	13.0	93.6	55.8	77.8	57.7	97.4	55.1
		59 m.p.h.	54.5	46.6	60.4	54.7	50.4	42.2	97.9	89.4	88.9	88.5	100.0	89.7
		64 m.p.h.	88.3	78.5	91.2	81.4	86.3	77.0	97.9	100.0	88.9	100.0	---	100.0
		69 m.p.h.	97.3	93.9	97.8	93.0	96.9	94.4	100.0	---	100.0	---	---	---
		74 m.p.h.	100.0	99.2	100.0	98.8	100.0	99.4	---	---	---	---	---	---
		79 m.p.h.	---	100.0	---	100.0	---	100.0	---	---	---	---	---	---
		84 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
S Bound	No. of vehicles obs.		115	126	49	43	66	83	25	51	3	13	22	38
	Average speed		57.6	60.3	57.9	59.1	57.4	60.9	44.7	53.7	46.0	53.6	44.5	53.7
N Bound	No. of vehicles obs.		106	121	41	43	65	78	22	53	6	13	16	40
	Average speed		59.4	60.0	58.3	59.2	60.1	60.4	48.8	52.9	53.0	53.8	47.2	52.6

TABLE 11 SPEED DATA

Station 11 Highway U.S. 31 Location 30 Miles South of Rochester

No. of Lanes 2 Type of Surface A.C. Weather Hot and Clear

This Observation — Date July 16, 1964 — Time 11:15 A.M. - 2:30 P.M.

Last Previous Observation (Speed Report No. _____) — Date June 7, 1963 — Time 12:00 - 2:35 P.M.

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		241	255	183	194	58	61	52	100	22	30	30	70
	Average speed (m.p.h.)		56.5	59.1	56.3	59.1	57.0	59.2	50.8	52.6	52.3	55.2	49.7	51.2
	Standard deviation		5.43	7.15	5.48	7.37	5.29	6.46	5.14	6.98	5.75	8.64	4.44	5.63
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	3.3	0.0	0.0
		39 m.p.h.	0.4	0.8	0.5	0.5	0.0	1.6	0.0	2.0	0.0	3.3	0.0	1.4
		44 m.p.h.	2.5	3.1	2.7	3.1	1.7	3.3	13.5	12.0	18.2	6.7	10.0	14.3
		49 m.p.h.	9.1	8.6	9.8	9.3	6.9	6.6	46.2	31.0	27.3	16.7	60.0	37.1
		54 m.p.h.	31.9	23.1	33.3	24.7	27.6	18.0	78.8	63.0	72.7	46.7	83.3	70.0
		59 m.p.h.	71.4	49.0	73.2	50.5	65.6	44.3	94.2	84.0	90.9	63.3	96.7	92.9
		64 m.p.h.	95.9	77.3	96.2	75.3	94.8	83.6	98.1	93.0	95.5	76.7	100.0	100.0
		69 m.p.h.	99.6	93.7	99.5	93.8	100.0	93.4	100.0	99.0	100.0	96.7	---	---
		74 m.p.h.	99.6	98.8	100.0	98.5	---	100.0	---	100.0	---	100.0	---	---
		79 m.p.h.	100.0	99.6	---	99.5	---	---	---	---	---	---	---	---
		84 m.p.h.	---	100.0	---	100.0	---	---	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
S N Bound	No. of vehicles obs.		142	132	106	102	36	30	28	54	15	16	13	38
	Average speed		56.5	59.3	56.3	59.0	57.0	60.0	51.7	52.6	53.3	55.4	49.9	51.4
S N Bound	No. of vehicles obs.		99	123	77	92	22	31	24	46	7	14	17	32
	Average speed		56.5	58.9	56.3	59.1	57.0	58.5	49.7	52.6	50.1	56.5	49.6	50.9

TABLE 12 SPEED DATA

Station 12 Highway S. R. 23 Location 0.7 Miles W. of Americus

No. of Lanes 2 Type of Surface A.C. Weather Hot and Cloudy

This Observation — Date July 8, 1964 — Time 2:00 - 4:45 p.m.

Last Previous Observation (Speed Report No. _____) — Date June 12, 1963 — Time 2:50 - 4:30 p.m.

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	241	198	225	174	16	24	51	62	33	28	18	34
	Average speed (m.p.h.)	57.9	59.1	57.7	58.9	60.8	60.0	51.5	51.7	53.4	52.7	48.0	50.9
	Standard deviation	6.63	7.34	6.71	7.28	4.79	7.88	6.72	7.19	6.50	8.15	5.76	6.30
	% of vehicles traveling at or less than 24 m.p.h.	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% of vehicles traveling at or less than 29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	% of vehicles traveling at or less than 34 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	0.0	3.6	0.0	0.0
	% of vehicles traveling at or less than 39 m.p.h.	0.4	0.0	0.4	0.0	0.0	0.0	3.9	3.2	3.0	3.6	5.6	2.9
	% of vehicles traveling at or less than 44 m.p.h.	1.7	1.5	1.8	1.7	0.0	0.0	19.6	17.7	24.2	14.3	38.9	20.6
	% of vehicles traveling at or less than 49 m.p.h.	9.9	6.6	10.7	6.9	2.0	4.2	37.3	38.7	39.4	39.3	61.1	38.2
	% of vehicles traveling at or less than 54 m.p.h.	32.8	28.3	34.2	31.7	12.5	25.0	64.7	64.5	69.7	53.6	83.3	73.5
	% of vehicles traveling at or less than 59 m.p.h.	56.4	57.1	57.8	56.9	37.5	58.3	88.2	83.9	87.9	78.6	100.0	88.2
	% of vehicles traveling at or less than 64 m.p.h.	85.5	78.8	85.3	79.3	87.5	75.0	96.1	96.8	93.9	92.9	---	100.0
	% of vehicles traveling at or less than 69 m.p.h.	95.4	91.9	95.6	93.1	93.8	83.3	100.0	98.4	100.0	96.4	---	---
	% of vehicles traveling at or less than 74 m.p.h.	99.6	96.5	99.6	97.1	100.0	91.7	---	100.0	---	100.0	---	---
	% of vehicles traveling at or less than 79 m.p.h.	99.6	99.5	99.6	99.4	---	100.0	---	---	---	---	---	---
	% of vehicles traveling at or less than 84 m.p.h.	100.0	100.0	100.0	100.0	---	---	---	---	---	---	---	---
	% of vehicles traveling at or less than 89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.	127	104	117	93	10	11	25	32	21	14	4	18
	Average speed	58.2	58.9	57.9	58.8	61.2	59.9	54.1	51.9	54.7	52.3	51.0	51.6
Bound	No. of vehicles obs.	114	94	108	81	6	13	26	30	12	14	14	16
	Average speed	57.6	59.3	57.5	59.1	60.2	60.4	49.0	51.4	51.2	53.0	47.1	50.0

TABLE 13 SPEED DATA

Station 1, 2, 3, 4 Highway Interstate Location See Individual Stations

No. of Lanes 4 Type of Surface Weather

This Observation — Date — Time

Last Previous Observation (Speed Report No.) — Date — Time

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		955	1034	550	612	405	422	199	401	63	98	136	303
	Average speed (m.p.h.)		60.3	62.7	59.7	61.9	61.2	63.6	52.7	55.2	55.2	56.8	51.5	54.6
	Standard deviation		6.10	7.49	6.42	7.32	5.54	6.21	6.71	6.19	5.53	7.94	5.10	5.41
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.3
		34 m.p.h.	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2
		39 m.p.h.	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.7	0.0	1.0	0.0	0.7
		44 m.p.h.	0.8	1.3	1.1	1.4	0.5	0.9	7.5	4.5	3.2	4.1	9.6	4.6
		49 m.p.h.	4.8	4.6	7.1	6.5	1.7	1.9	27.1	16.0	12.7	19.4	33.8	14.9
		54 m.p.h.	16.0	13.3	18.5	17.2	11.4	7.6	63.8	42.1	44.4	35.7	72.8	45.5
		59 m.p.h.	47.1	31.4	45.6	35.6	36.3	25.4	89.4	79.4	77.8	64.3	94.9	84.5
		64 m.p.h.	77.7	55.9	79.6	60.3	75.1	50.9	98.9	93.8	96.8	83.7	100.0	97.0
		69 m.p.h.	93.8	82.4	93.6	84.2	94.1	79.9	100.0	98.3	100.0	92.9	---	100.0
		74 m.p.h.	98.7	96.0	98.7	96.1	98.8	96.0	---	99.5	---	98.0	---	---
		79 m.p.h.	100.0	99.2	100.0	99.5	100.0	98.8	---	100.0	---	100.0	---	---
		84 m.p.h.	---	100.0	---	100.0	---	100.0	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.		---	---	---	---	---	---	---	---	---	---	---	---
	Average speed		---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.		---	---	---	---	---	---	---	---	---	---	---	---
	Average speed		---	---	---	---	---	---	---	---	---	---	---	---

TABLE 14 SPEED DATA

Station 5, 6, 7, 8 Highway 4 lanes Location See Individual Stations

No. of Lanes 4 Type of Surface ____ Weather ____

This Observation — Date ____ Time ____

Last Previous Observation (Speed Report No. ____) — Date ____ Time ____

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	955	1070	579	638	376	432	194	412	83	119	111	293
	Average speed (m.p.h.)	60.5	62.0	60.4	61.4	60.6	63.0	51.3	54.7	55.0	55.1	48.6	54.5
	Standard deviation	6.92	7.43	6.16	7.35	5.81	6.67	7.15	6.68	5.67	8.53	5.26	5.78
	% of vehicles traveling at or less than: 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.0	0.2	0.0	0.2	0.0	0.2	2.6	0.0	1.2	0.0	3.6	0.0
	39 m.p.h.	0.0	0.5	0.0	0.6	0.0	0.2	4.6	1.5	3.6	2.5	5.4	1.0
	44 m.p.h.	0.8	1.8	0.9	2.5	0.8	0.7	13.4	7.8	7.2	10.9	18.0	6.5
	49 m.p.h.	3.9	6.3	3.9	8.5	3.7	3.0	36.1	19.2	21.7	28.6	46.8	15.4
	54 m.p.h.	15.3	14.2	16.1	17.6	14.1	9.3	70.1	45.1	43.4	47.1	90.1	44.4
	59 m.p.h.	40.7	32.7	43.5	36.1	36.3	27.8	87.6	78.9	72.3	69.7	99.1	82.6
	64 m.p.h.	77.4	62.1	76.0	65.2	79.5	57.4	95.4	93.7	89.2	85.7	100.0	96.9
	69 m.p.h.	94.1	85.4	93.3	85.6	95.5	85.2	99.5	98.1	98.8	94.1	---	99.7
	74 m.p.h.	99.2	96.9	99.3	96.7	98.9	97.2	100.0	99.8	100.0	99.2	---	100.0
	79 m.p.h.	99.9	99.2	99.8	99.2	100.0	99.1	---	100.0	---	100.0	---	---
	84 m.p.h.	100.0	100.0	100.0	100.0	---	100.0	---	---	---	---	---	---
	89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.	---	---	---	---	---	---	---	---	---	---	---	---
	Average speed	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.	---	---	---	---	---	---	---	---	---	---	---	---
	Average speed	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 15 SPEED DATA

Station 9, 10, 11, 12 Highway 2-Lanes Location See Individual Stations

No. of Lanes 2 Type of Surface ____ Weather ____

This Observation — Date ____ Time ____

Last Previous Observation (Speed Report No. ____) — Date ____ Time ____

		PASSENGER CARS						TRUCKS					
		All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION		Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.	933	956	608	572	325	384	195	352	79	110	116	242
	Average speed (m.p.h.)	57.2	59.5	56.9	59.1	57.7	60.1	49.7	52.4	52.3	53.9	47.9	51.7
	Standard deviation	6.48	6.84	6.05	7.16	6.12	6.26	5.90	6.36	6.18	7.99	5.01	5.33
	% of vehicles traveling at or less than: 24 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	34 m.p.h.	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.6	0.0	1.8	0.0	0.0
	39 m.p.h.	0.4	0.2	0.5	0.2	0.3	0.3	2.1	2.3	1.3	4.5	2.6	1.2
	44 m.p.h.	2.6	1.7	2.3	2.3	3.1	0.8	22.1	10.2	13.9	11.8	27.6	9.5
	49 m.p.h.	9.6	6.3	10.0	7.9	8.9	3.9	53.8	31.8	32.9	28.2	68.1	33.5
	54 m.p.h.	31.5	22.3	34.2	25.2	26.5	18.0	79.0	62.8	64.6	51.8	88.8	67.8
	59 m.p.h.	62.5	49.4	65.3	52.8	57.2	44.3	93.8	86.1	82.3	73.6	98.3	91.7
	64 m.p.h.	90.8	77.9	91.1	77.6	90.2	78.4	98.5	96.6	96.2	89.1	100.0	100.0
	69 m.p.h.	98.1	93.3	97.9	93.4	98.5	93.2	100.0	99.4	100.0	98.2	---	---
	74 m.p.h.	99.8	97.9	99.7	97.6	100.0	98.4	---	100.0	---	100.0	---	---
	79 m.p.h.	99.9	99.8	99.8	99.7	---	100.0	---	---	---	---	---	---
	84 m.p.h.	100.0	100.0	100.0	100.0	---	---	---	---	---	---	---	---
	89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.	---	---	---	---	---	---	---	---	---	---	---	---
	Average speed	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.	---	---	---	---	---	---	---	---	---	---	---	---
	Average speed	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 16 SPEED DATA

Station 1 thru 12 Highway All Systems Location See Individual Stations

No. of Lanes _____ Type of Surface _____ Weather _____

This Observation
Date _____
Time _____

Last Previous Observation (Speed Report No. _____)
Date _____
Time _____

			PASSENGER CARS						TRUCKS					
			All		Indiana		Non-Indiana		All		Less than 5000 pounds		5000 pounds or more	
OBSERVATION			Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
All vehicles	No. of vehicles obs.		2842	3060	1737	1822	1105	1238	585	1165	225	327	363	838
	Average speed (m.p.h.)		59.3	61.5	59.9	60.8	58.9	61.4	61.2	57.1	54.1	55.2	49.5	53.7
	Standard deviation		6.24	7.40	6.39	7.72	5.94	6.78	6.24	6.52	6.20	8.24	5.21	5.67
	% of vehicles traveling at or less than	24 m.p.h.	0.0	0.1	0.3	0.3	0.1	0.3	0.1	0.1	0.4	0.6	0.0	0.0
		29 m.p.h.	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
		34 m.p.h.	0.0	0.1	0.0	0.1	0.1	0.1	0.9	0.2	1.4	0.6	1.1	0.1
		39 m.p.h.	0.1	0.3	0.2	0.4	0.1	0.2	2.2	1.5	1.8	2.8	2.5	1.0
		44 m.p.h.	1.4	1.8	1.4	2.4	1.4	0.8	19.3	7.4	8.4	9.2	17.9	6.7
		49 m.p.h.	6.1	5.7	7.1	7.6	4.5	3.9	38.9	21.9	23.1	35.7	48.3	20.4
		54 m.p.h.	20.9	16.4	23.5	19.8	16.7	11.4	70.9	47.6	51.1	45.3	83.2	51.6
		59 m.p.h.	48.2	37.5	51.3	41.2	42.4	32.1	90.3	81.3	79.1	69.4	97.	85.9
		64 m.p.h.	81.9	64.5	82.4	67.1	81.3	61.7	97.6	94.6	93.8	86.2	100.0	97.9
		69 m.p.h.	95.3	86.9	95.6	87.5	95.8	86.2	99.8	98.5	99.6	95.1	---	99.9
		74 m.p.h.	99.2	96.9	99.3	96.8	99.2	97.2	100.0	99.7	100.0	99.1	---	100.0
		79 m.p.h.	99.9	99.4	99.9	99.5	100.0	99.3	---	100.0	---	100.0	---	---
		84 m.p.h.	100.0	100.0	100.0	100.0	---	100.0	---	---	---	---	---	---
		89 m.p.h.	---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.		---	---	---	---	---	---	---	---	---	---	---	---
	Average speed		---	---	---	---	---	---	---	---	---	---	---	---
Bound	No. of vehicles obs.		---	---	---	---	---	---	---	---	---	---	---	---
	Average speed		---	---	---	---	---	---	---	---	---	---	---	---

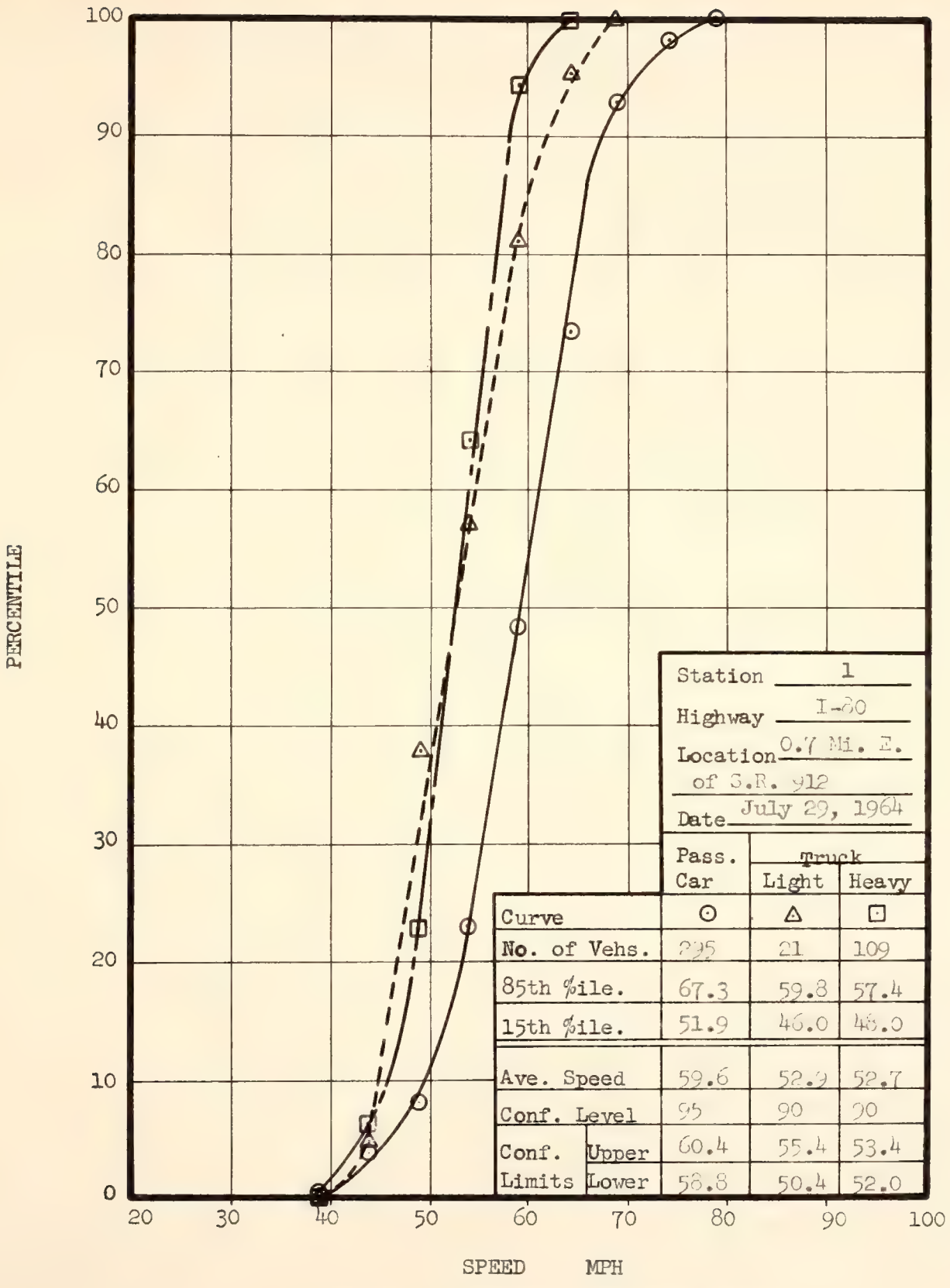


Figure 2 Accumulative Speed Curves

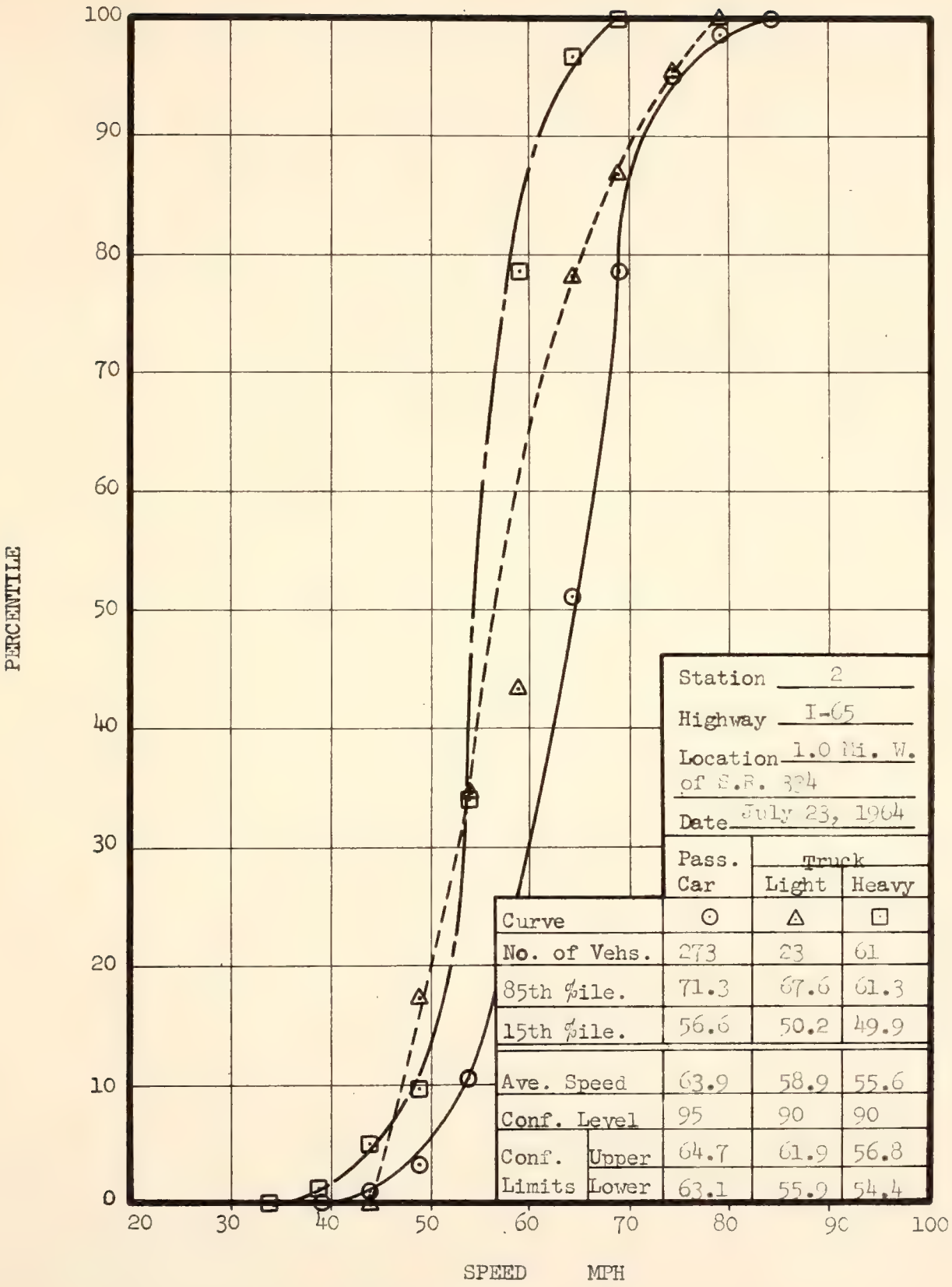


Figure 3 Accumulative Speed Curves

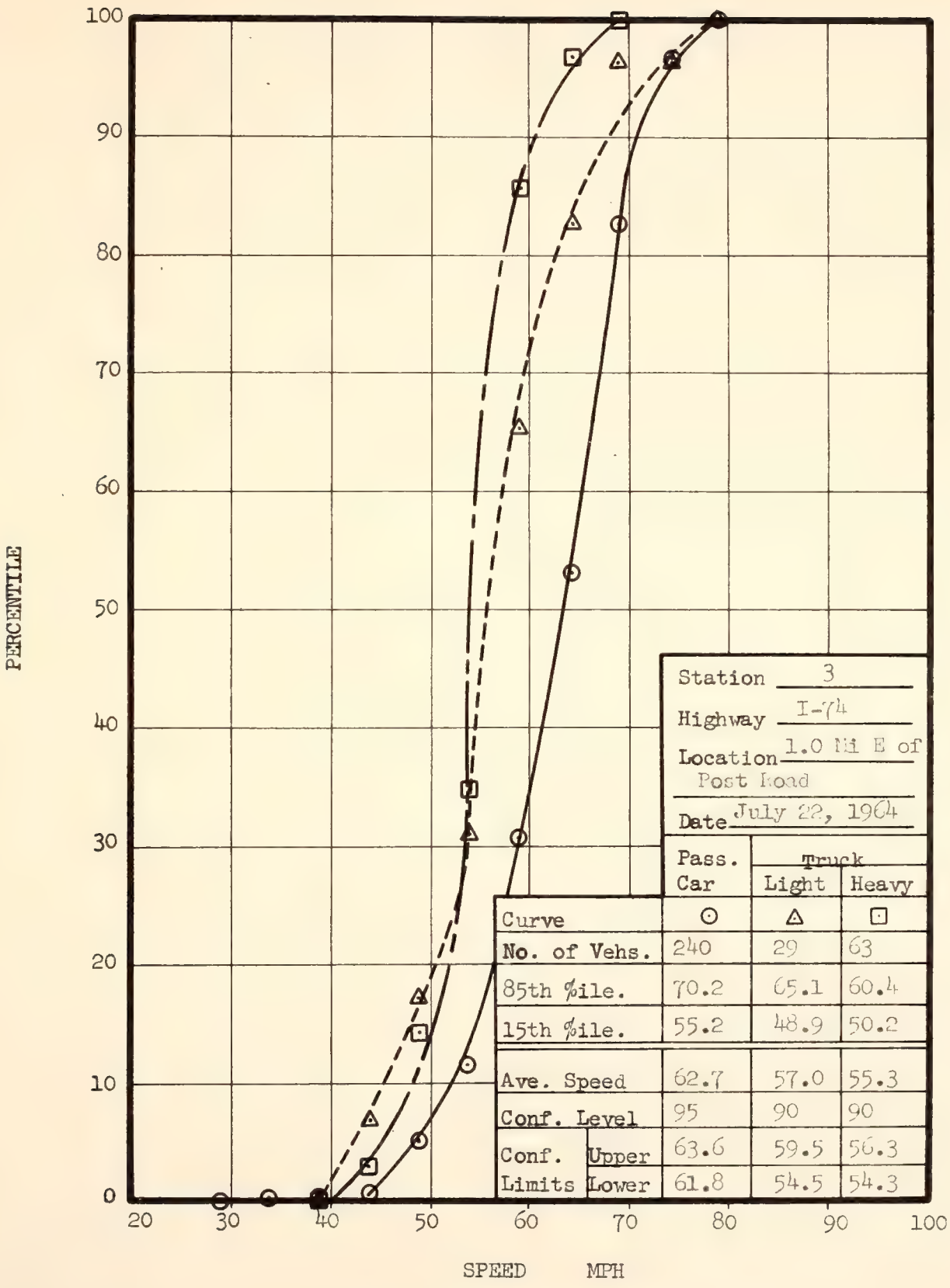


Figure 4 Accumulative Speed Curves

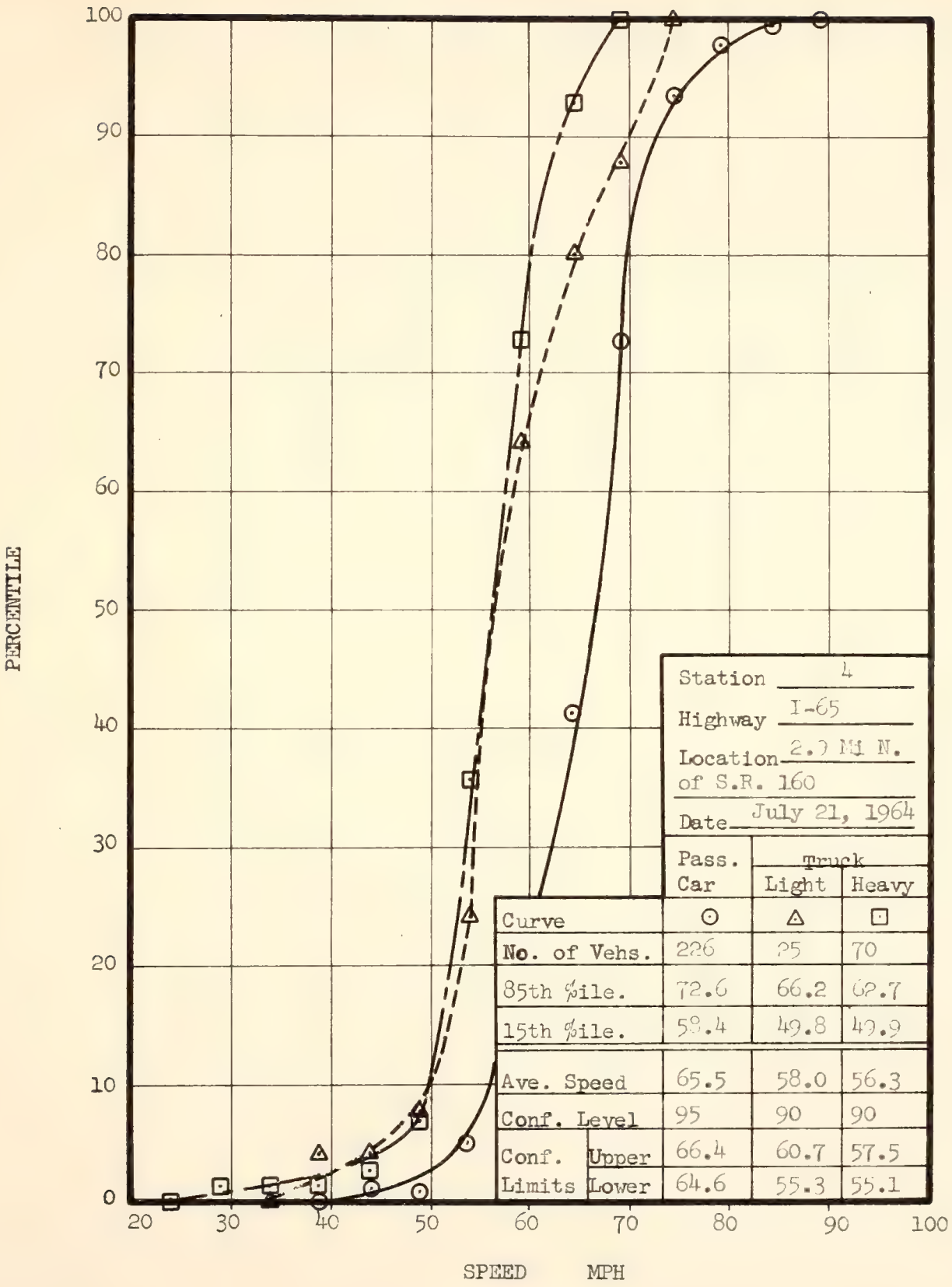


Figure 5 Accumulative Speed Curves

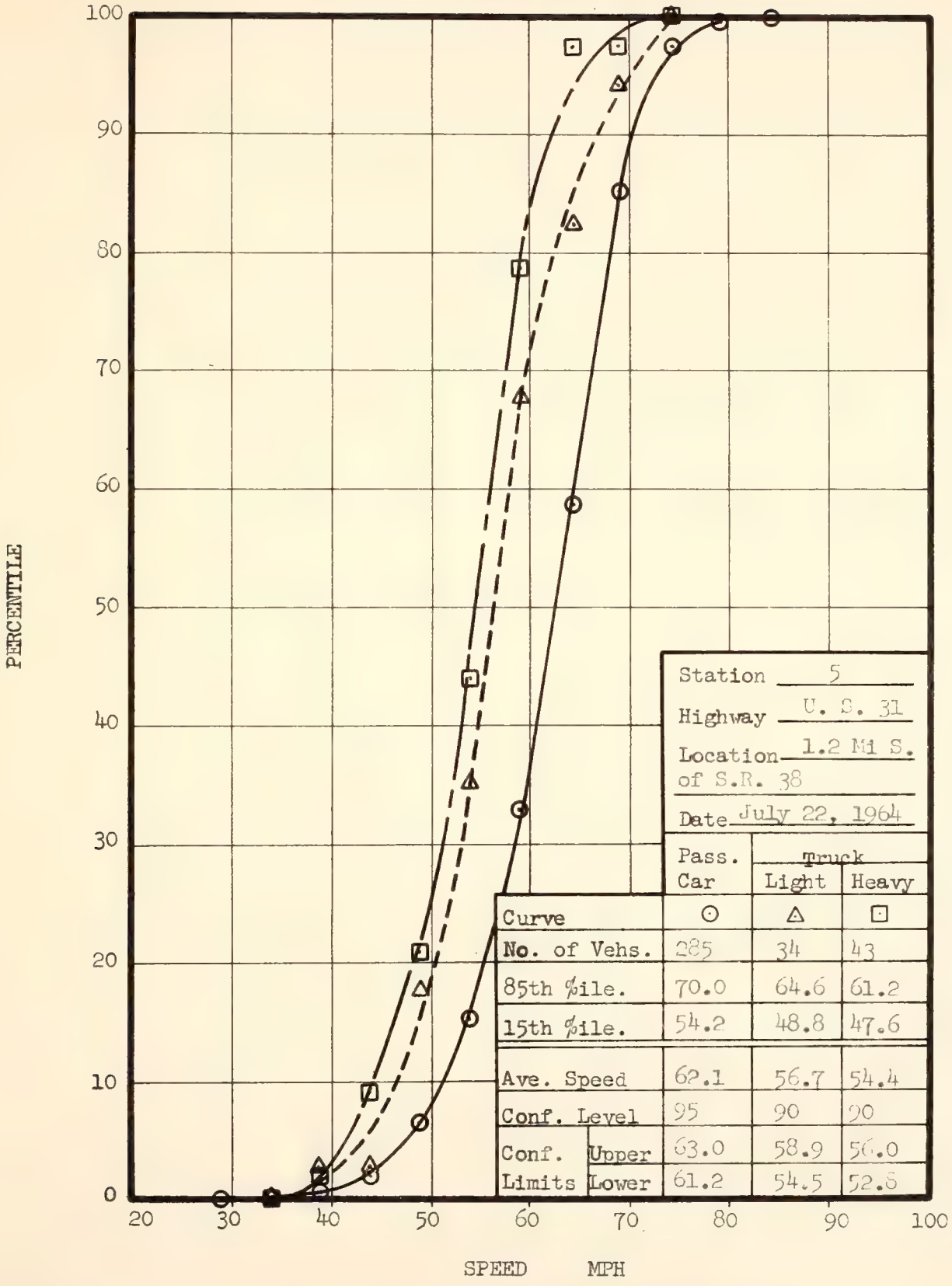


Figure 6 Accumulative Speed Curves

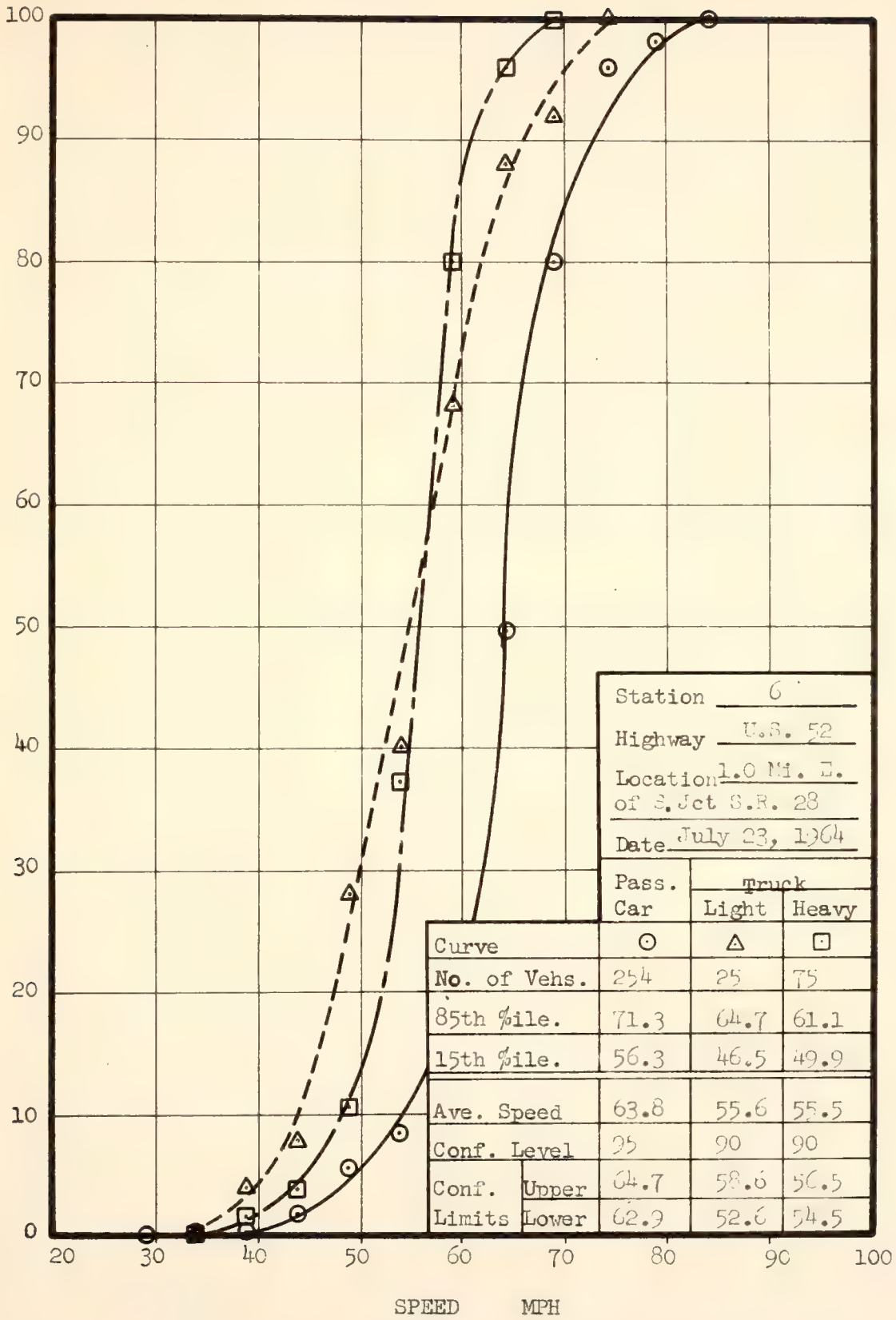


Figure 7 Accumulative Speed Curves

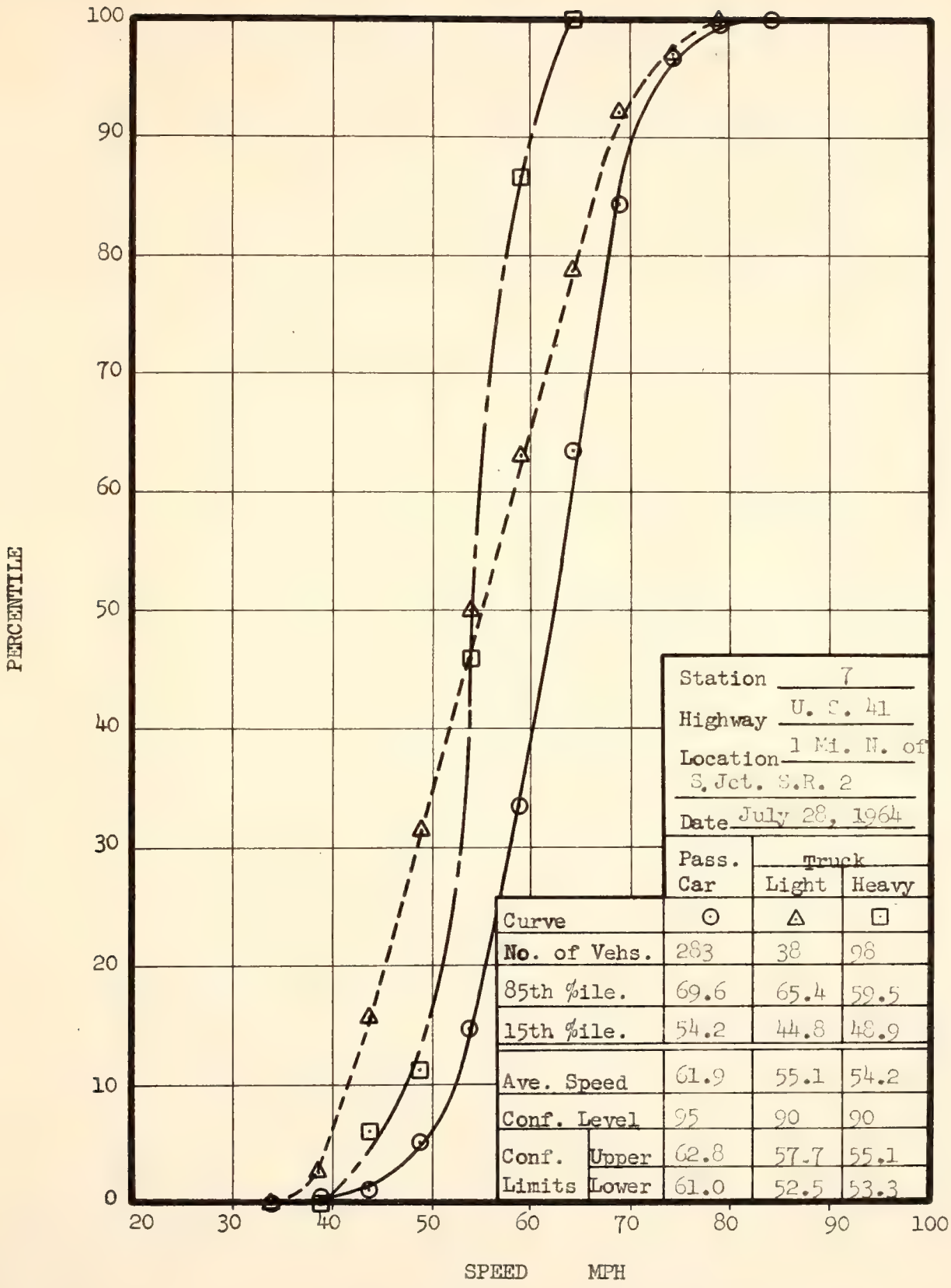


Figure 8 Accumulative Speed Curves

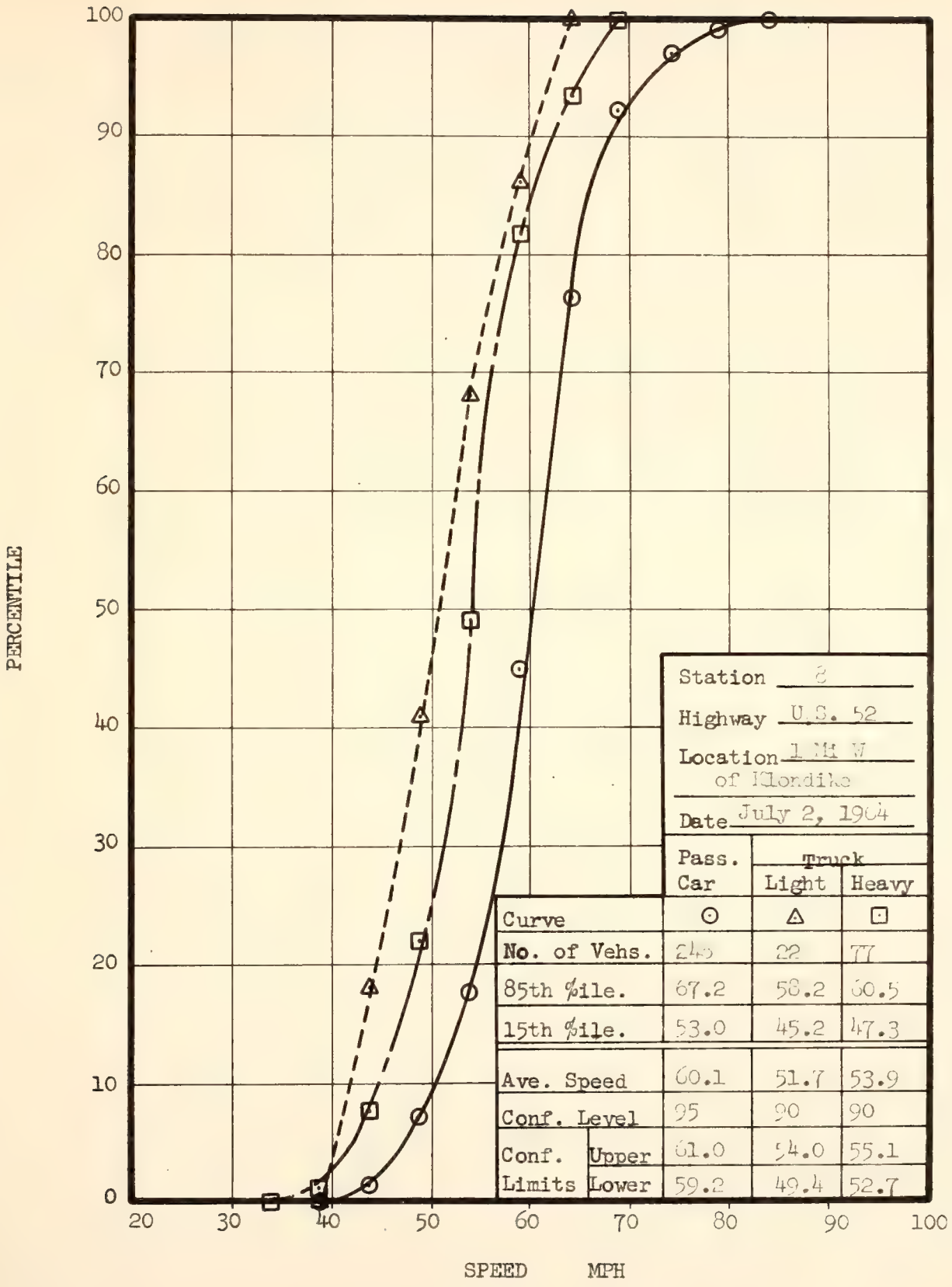


Figure 9 Accumulative Speed Curves

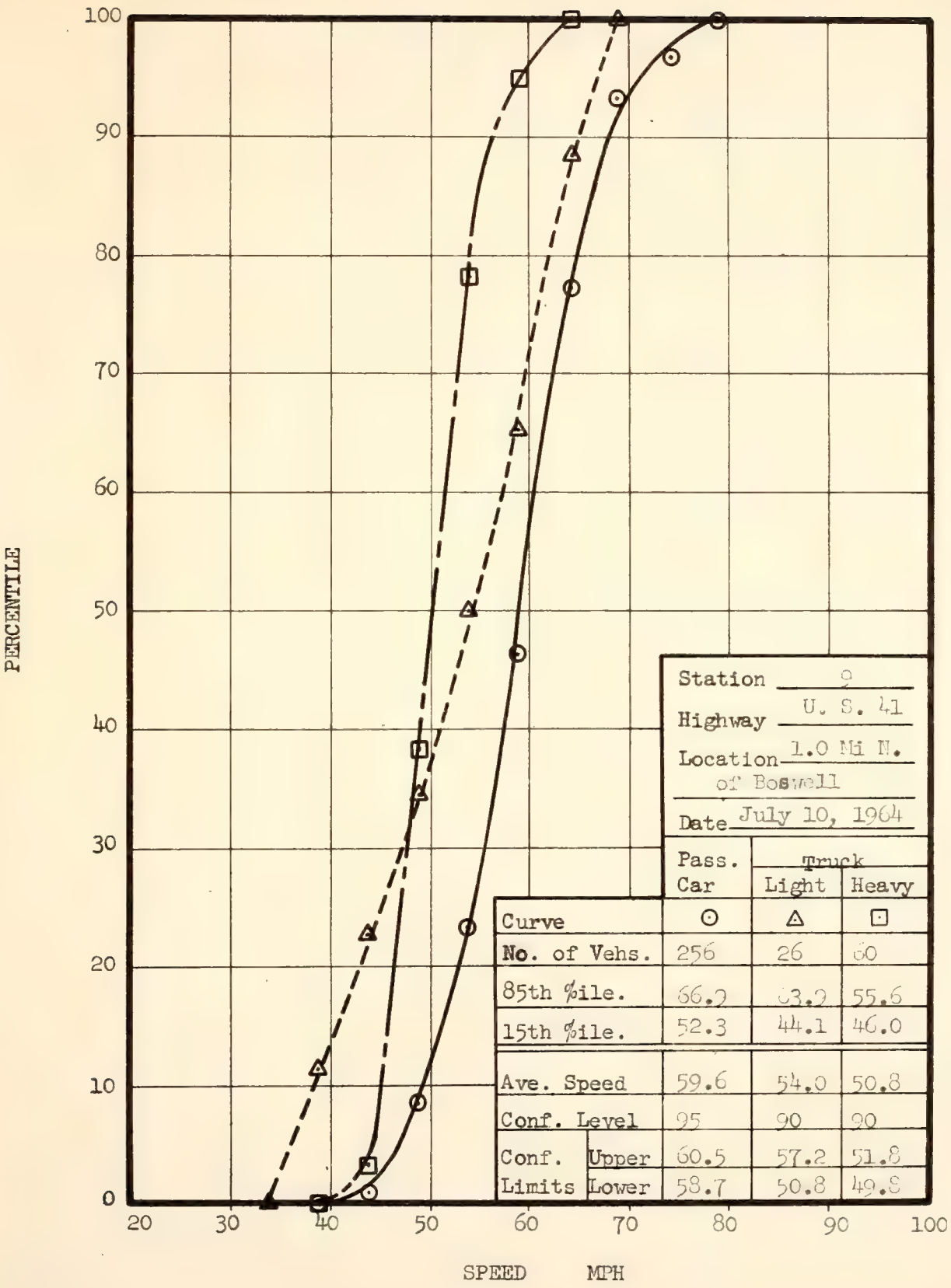


Figure 10 Accumulative Speed Curves

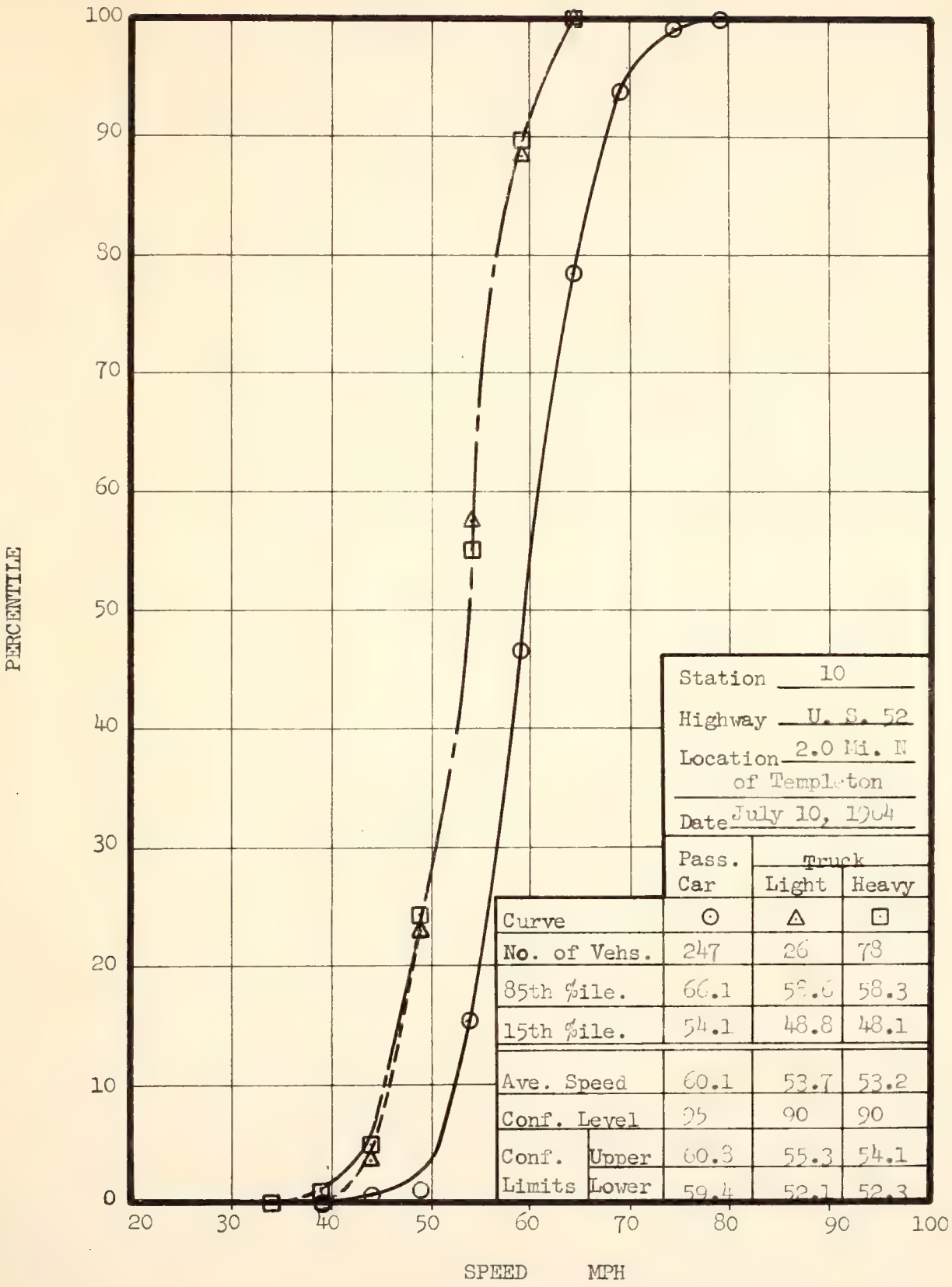


Figure 11 Accumulative Speed Curves

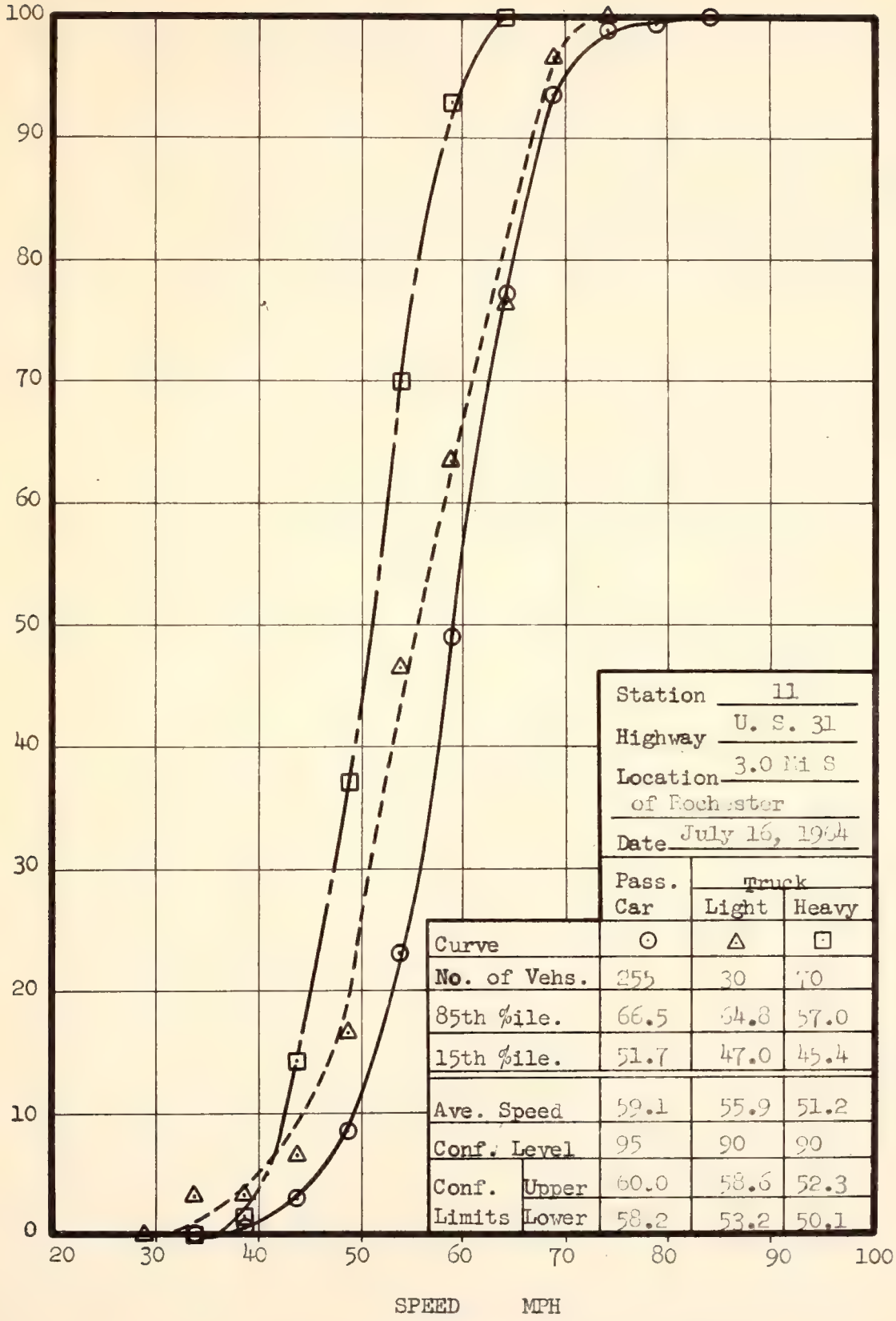


Figure 12 Accumulative Speed Curves

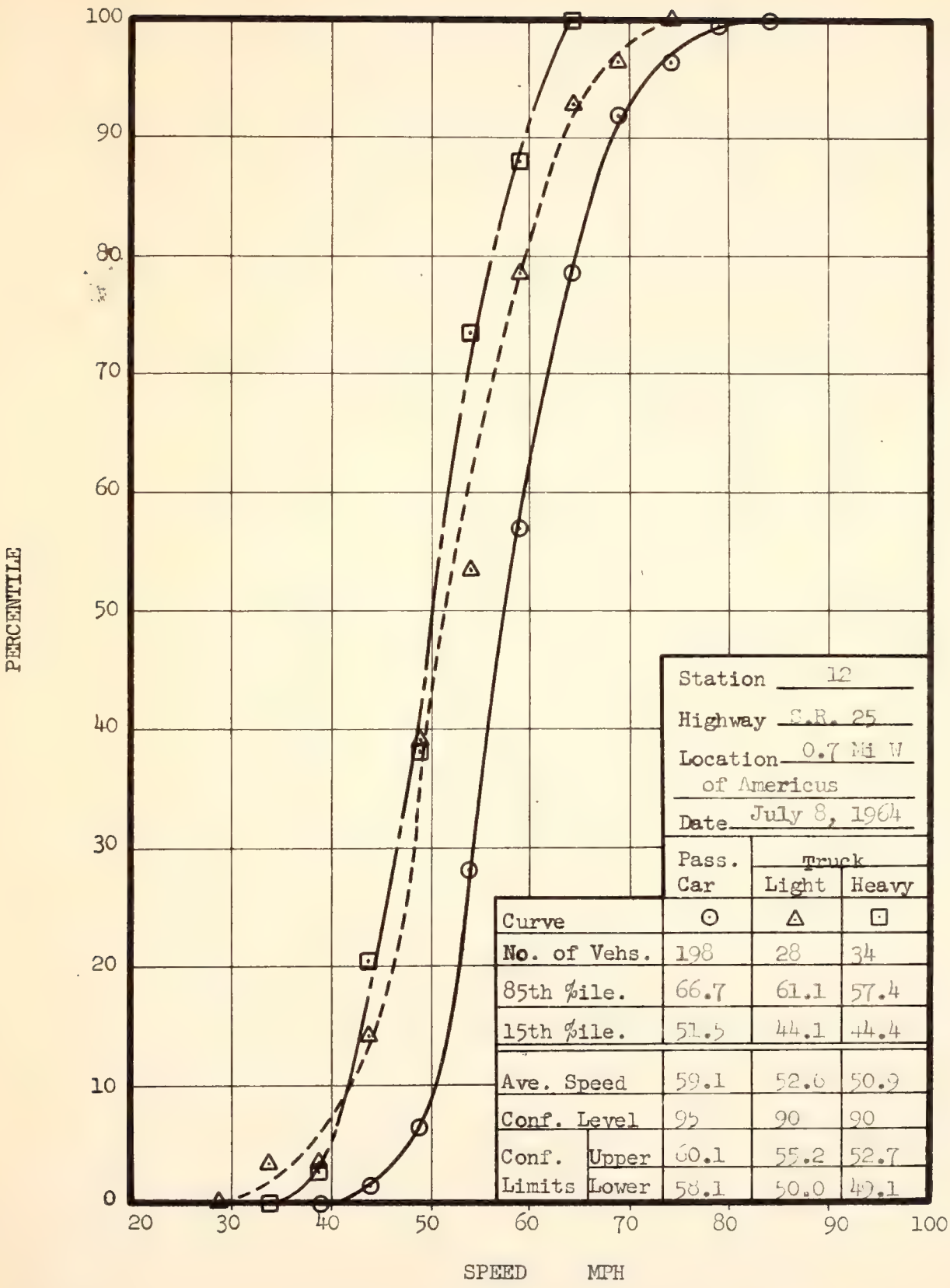


Figure 13 Accumulative Speed Curves

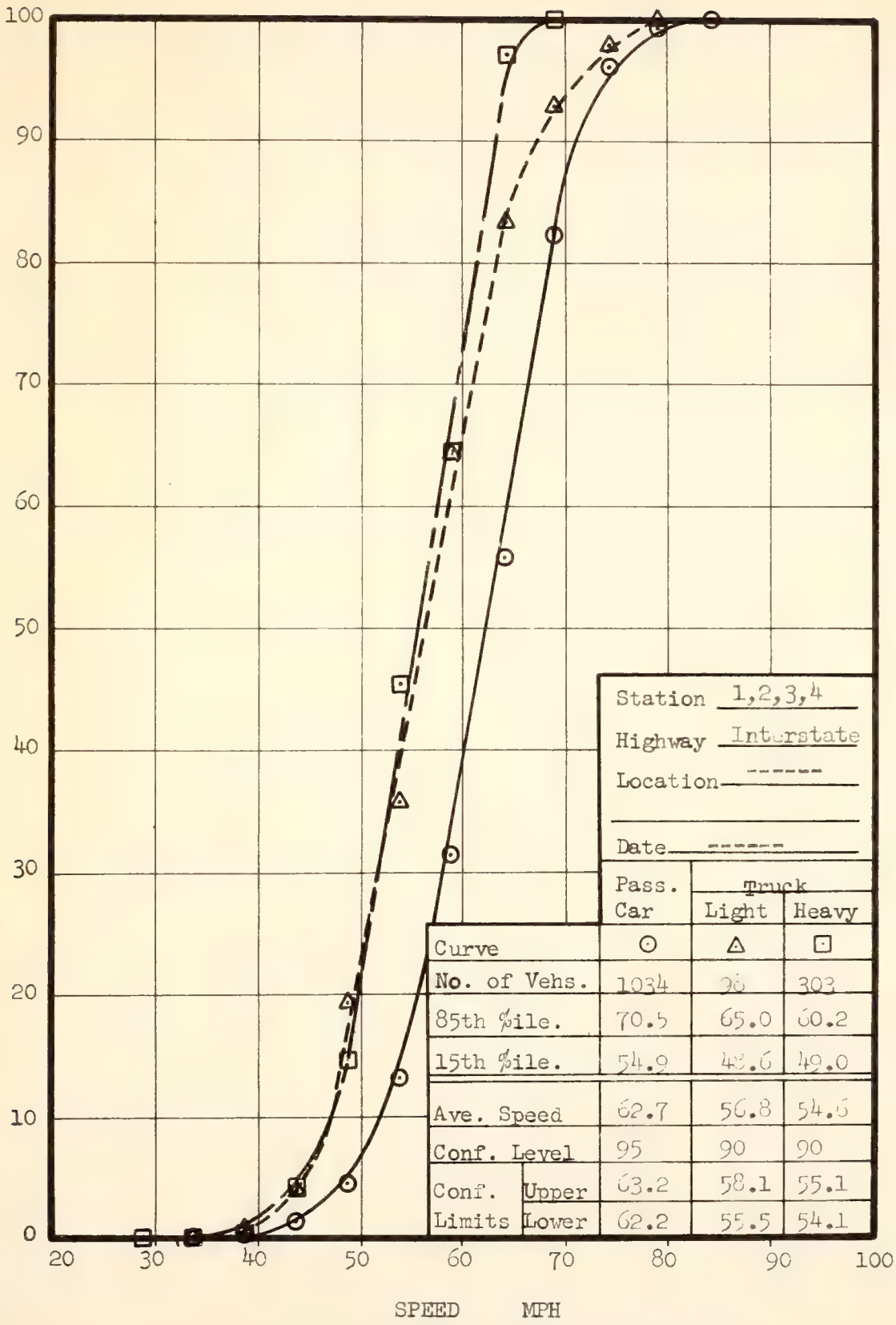


Figure 14 Accumulative Speed Curves

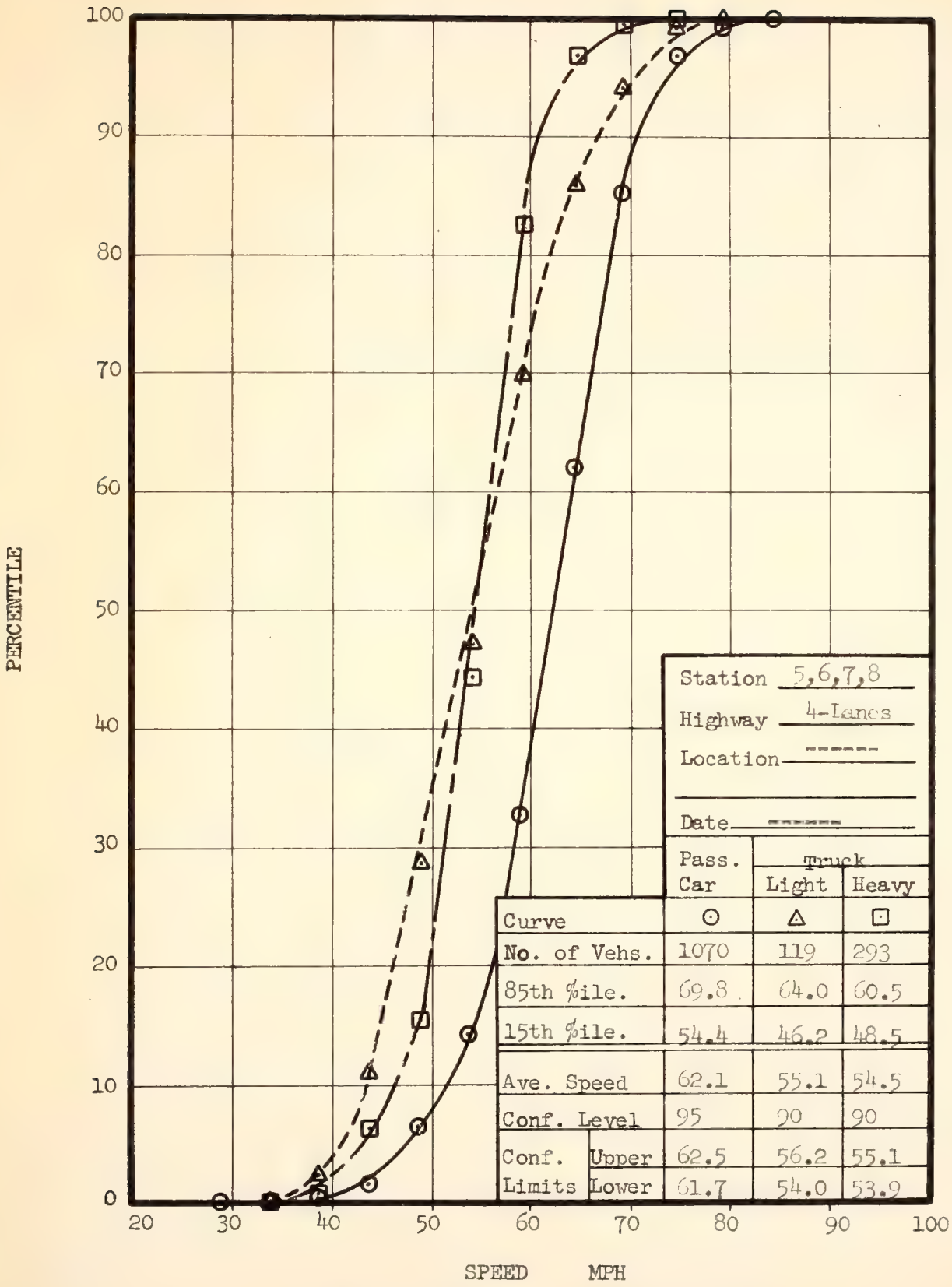


Figure 15 Accumulative Speed Curves

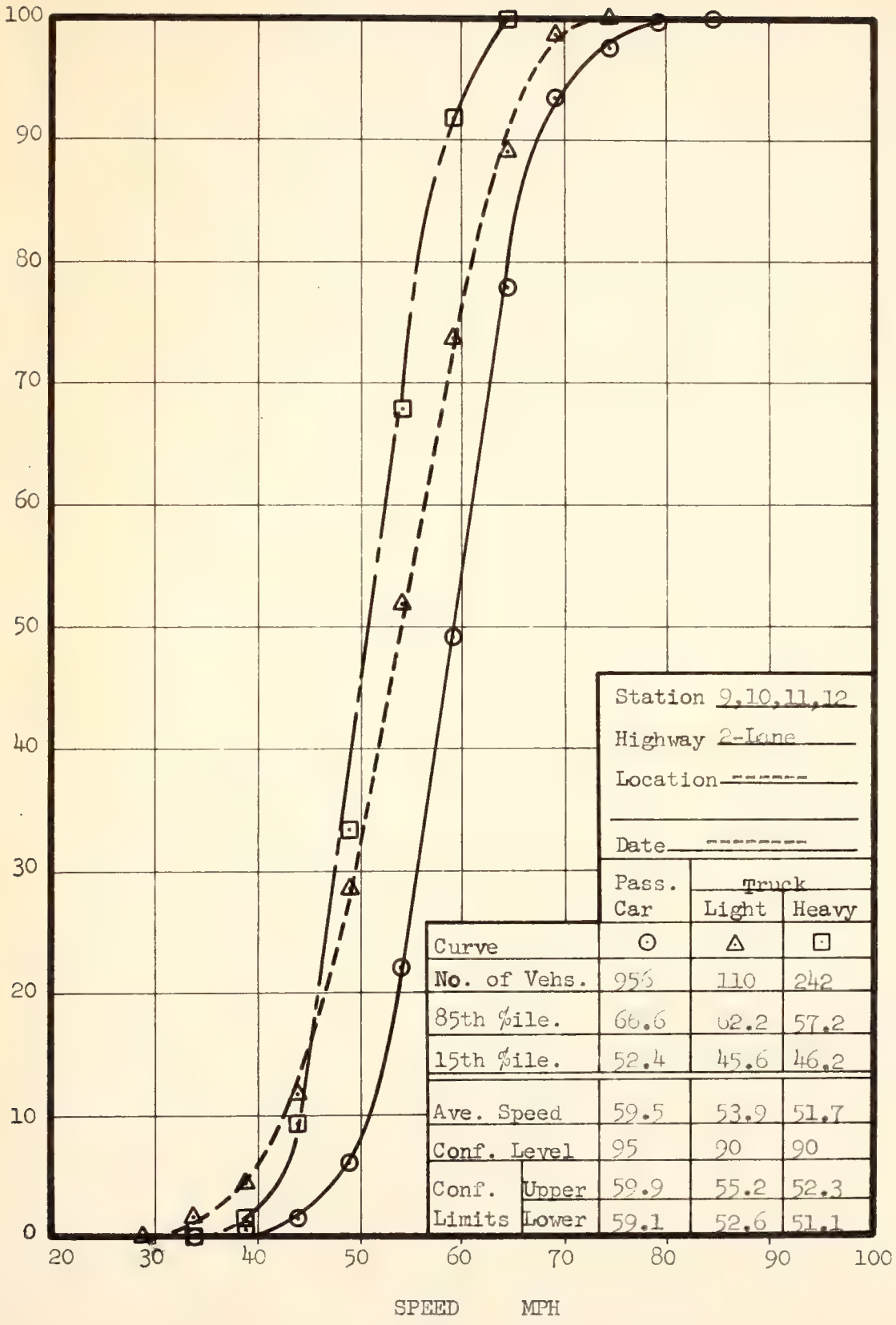


Figure 16 Accumulative Speed Curves

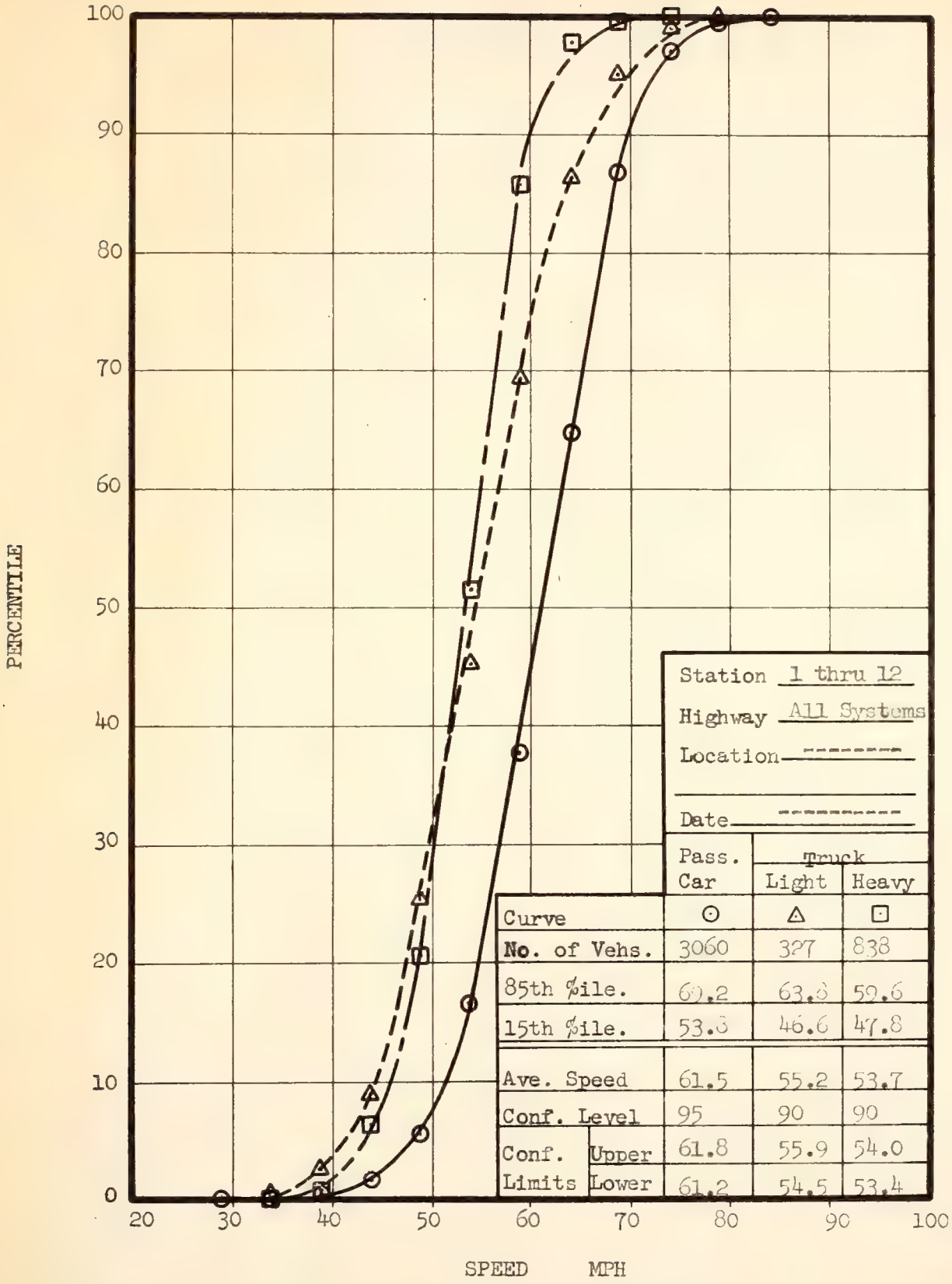


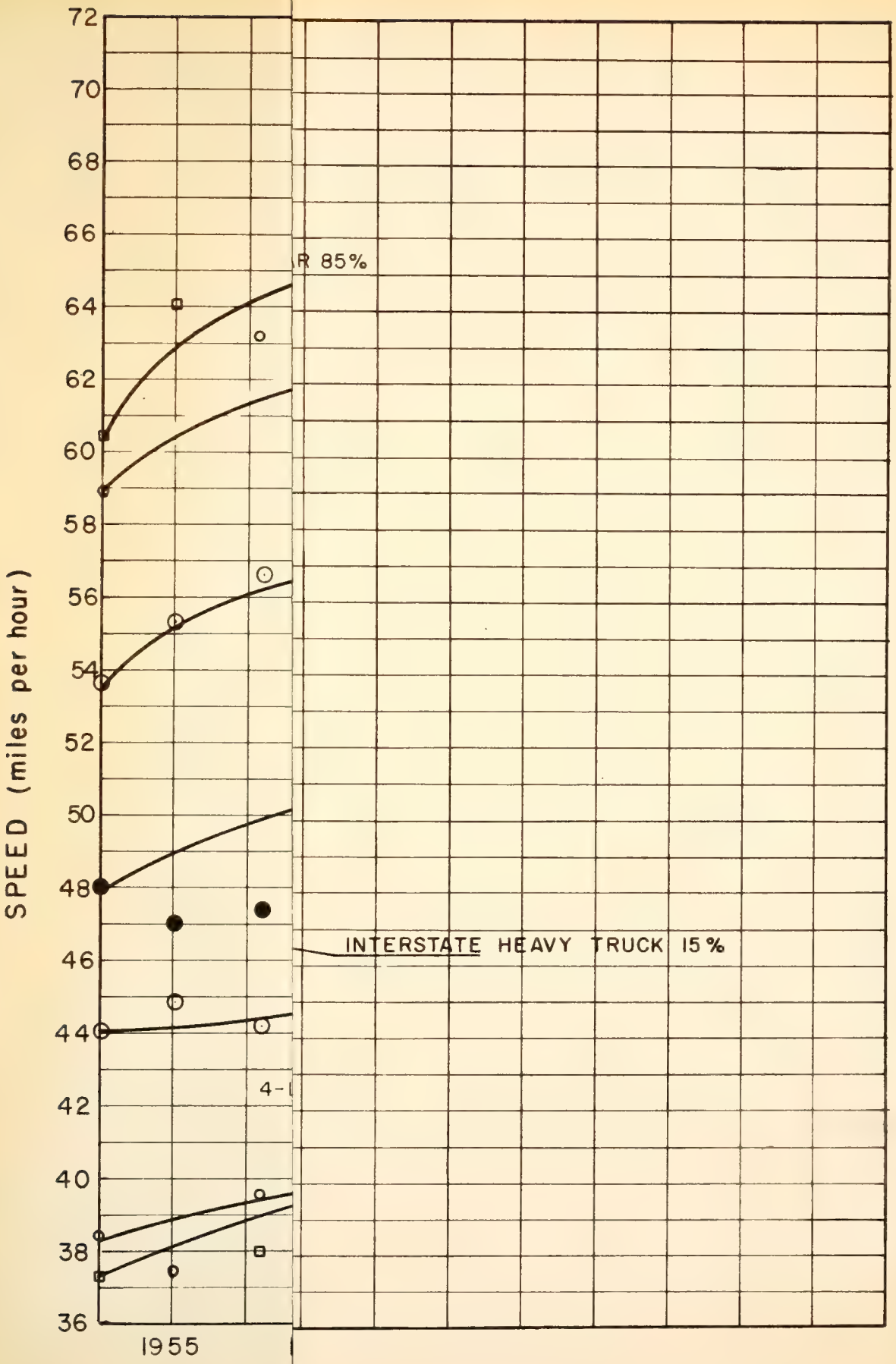
Figure 17 Accumulative Speed Curves

TABLE 17

SUMMARY OF SPOT SPEED OBSERVATION
ON INDIANA HIGHWAYS
(Free-Moving Vehicles on Level, Tangent Sections)

	Passenger Cars				Trucks		
	Ind. Mean	Non-Ind. Mean	All Mean	85 per	Light Mean	Heavy Mean	All Mean
Two-Lane Highways							
Aug. '57	55.5	56.7	55.9	62.1	51.7	45.6	47.3
Aug. '58	54.3	56.3	55.0	61.7	53.0	46.3	47.8
Aug. '59	55.6	55.3	55.9	63.2	49.7	46.7	46.0
Sept. '60	55.7	55.6	55.6	62.0	53.0	48.1	49.1
Aug. '61	56.2	55.7	55.9	62.2	50.4	48.9	49.3
Aug. '62	56.7	57.5	57.0	63.7	53.1	49.3	50.1
Jun. '63	56.9	57.7	57.2	64.0	52.3	47.9	49.7
July '64	59.1	60.1	59.5	66.5	53.9	51.7	52.4
Four-Lane Highways							
Aug. '57	57.5	58.9	58.1	64.3	52.0	46.6	47.5
Aug. '58	58.0	59.1	58.7	65.0	54.3	49.0	50.0
Aug. '59	58.4	60.1	59.2	64.5	56.0	53.1	49.5
Sept. '60	59.5	60.2	59.7	65.2	54.8	51.3	52.0
Aug. '61	57.6	57.4	57.5	63.5	53.2	50.3	51.0
Aug. '62	59.2	59.3	59.2	65.2	54.7	51.3	51.9
Jun. '63	60.4	60.6	60.5	67.3	55.0	49.6	51.3
July '64	61.4	63.0	62.0	69.4	55.1	54.5	54.7
Interstate Highways							
Aug. '61	56.7*	58.0*	58.2	64.0	55.3	51.5	52.4
Aug. '62	58.7	57.1	57.8	63.5	55.3	52.7	53.2
Jun. '63	59.7	61.2	60.3	66.3	53.2	51.5	52.7
July '64	61.9	64.0	63.1	70.5	57.3	54.6	55.2
All Highways							
Aug. '57	56.2	57.3	56.9	63.2	51.8	46.1	47.4
Aug. '58	55.7	57.2	56.5	63.1	53.4	47.5	48.7
Aug. '59	57.5	57.4	57.4	63.5	50.6	47.8	47.3
Sept. '60	57.3	57.5	57.4	63.7	53.7	49.4	50.2
Aug. '61	57.9	57.7	57.3	63.4	53.1	50.3	51.0
Aug. '62	58.2	58.7	58.4	65.1	54.5	51.2	51.9
Jun. '63	59.0	59.9	59.3	65.8	54.1	49.5	51.2
July '64	60.8	62.4	61.5	69.2	55.2	53.7	54.1

*Includes data for only three of the four stations on Interstate Highways


SPEED (miles per hour)
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
38
36
1955
R 85%
INTERSTATE HEAVY TRUCK 15%
4-

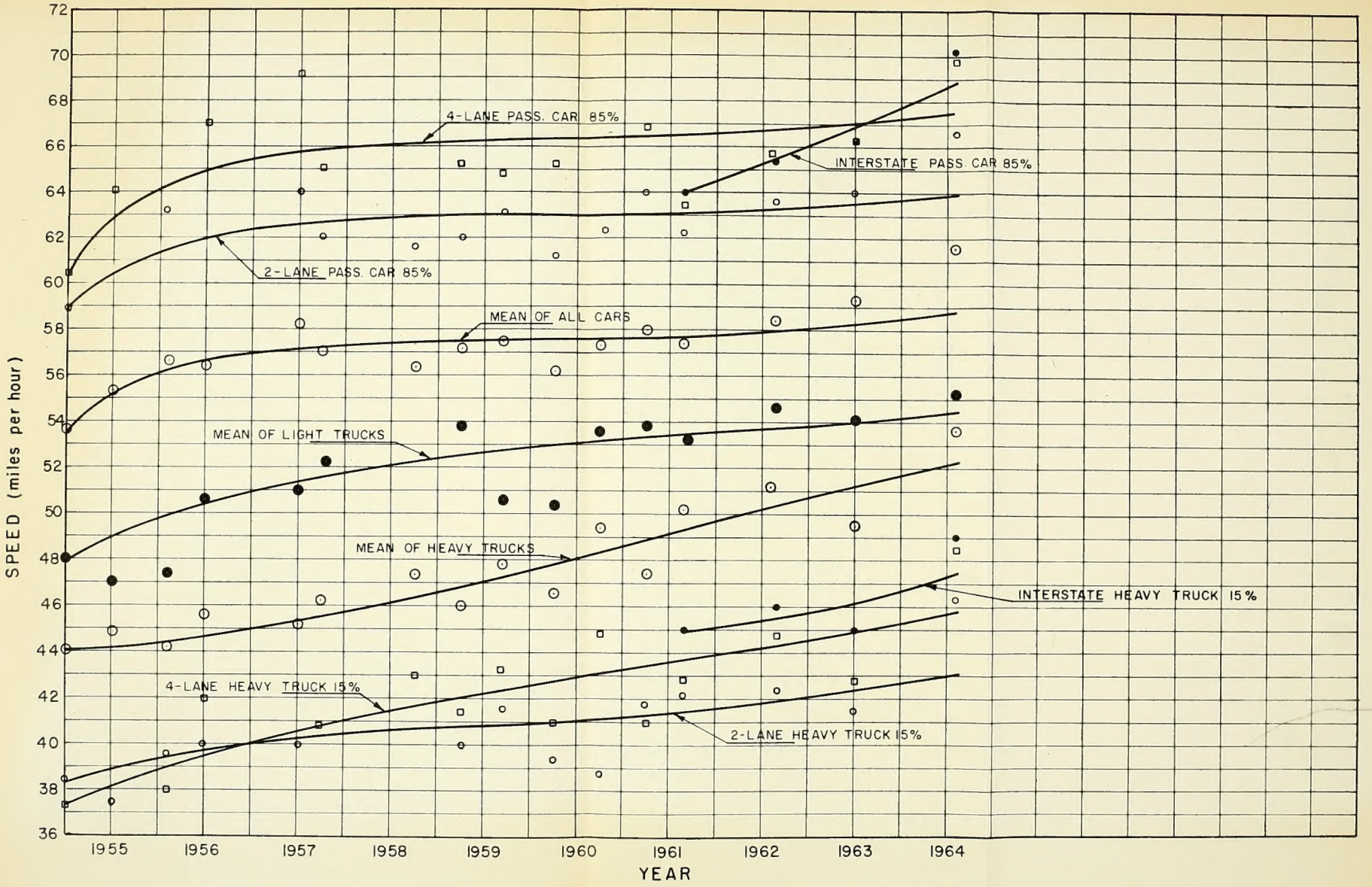
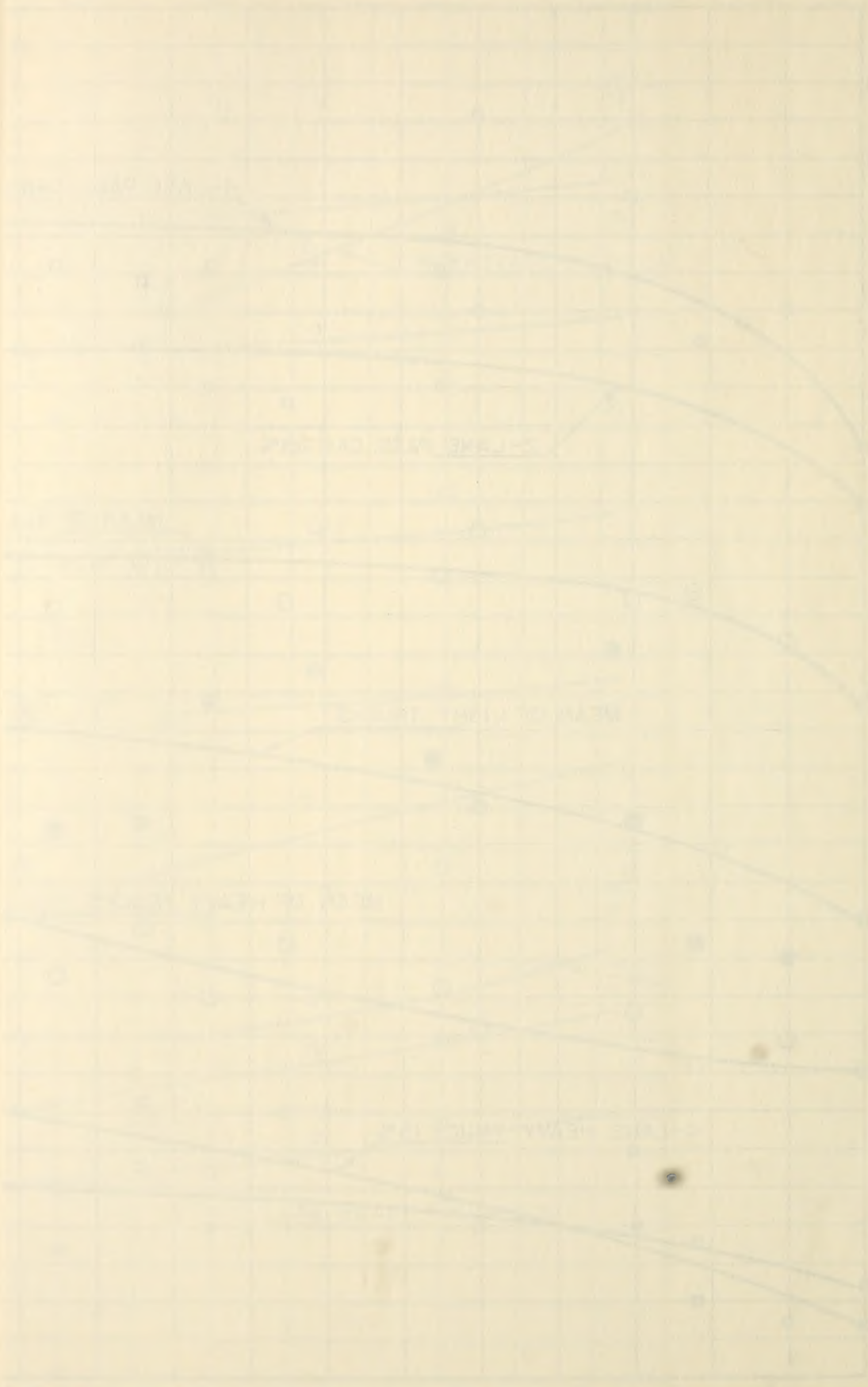



FIG. 18 - INDIANA RURAL SPEED TRENDS 1955 - 1964